

**Clouds and the Earth's Radiant Energy System
(CERES)**

Data Management System

**CERES Grid Single Satellite Fluxes and Clouds and
Compute Spatial Averages
(Subsystem 6.0)
and
CERES Grid TOA and Surface Fluxes for
Instantaneous Surface Product
(Subsystem 9.0)**

**Release 3 Test Plan
Version 12**

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The Document Revision Record contains information pertaining to approved document changes. The table lists the date the Software Configuration Change Request (SCCR) was approved, the Release and Version Number, the SCCR number, a short description of the revision, and the revised sections. The document authors are listed on the cover. The Head of the CERES Data Management Team approves or disapproves the requested changes based on recommendations of the Configuration Control Board.

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12/02/02	R3V9	403	<ul style="list-style-type: none"> • Added new CCcode CC6_3 for PGE CER6.3P1. Added new CCcode CC9_4 for PGE CER9.4P1. • Updated format to comply with standards. 	4.5, 4.8 All
01/23/03	R3V10	409	<ul style="list-style-type: none"> • Updated the list of expected output from automated tests for Subsystem 6.0 TRMM and Terra data processing. • Updated format to comply with standards. 	2.0, 3.0, 4.3, 4.4, 4.5 All
02/10/03	R3V11	423	<ul style="list-style-type: none"> • Updated the list of expected output from automated tests for PGE6.3P1 for Terra data processing. • Updated format to comply with standards. 	3.3, 4.5 All
04/24/03	R3V12	435	<ul style="list-style-type: none"> • Updated tar file names and makefile. • Updated the list of expected output from automated tests for PGEs CER9.2P1, CER9.3P1, and CER9.4P1 for Aqua data processing. • Updated format to comply with standards. 	2.1, 2.2 3.0, 4.6, 4.7, 4.8 All

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1.0 Introduction

The Clouds and the Earth's Radiant Energy System (CERES) is a key component of the Earth Observing System (EOS). The CERES instrument provides radiometric measurements of the Earth's atmosphere from three broadband channels: a shortwave channel (0.3 - 5 μm), a total channel (0.3 - 200 μm), and an infrared window channel (8 - 12 μm). The CERES instruments are improved models of the Earth Radiation Budget Experiment (ERBE) scanner instruments, which operated from 1984 through 1990 on the National Aeronautics and Space Administration's (NASA) Earth Radiation Budget Satellite (ERBS) and on the National Oceanic and Atmospheric Administration's (NOAA) operational weather satellites NOAA-9 and NOAA-10. The strategy of flying instruments on Sun-synchronous, polar orbiting satellites, such as NOAA-9 and NOAA-10, simultaneously with instruments on satellites that have precessing orbits in lower inclinations, such as ERBS, was successfully developed in ERBE to reduce time sampling errors. CERES continues that strategy by flying instruments on the polar orbiting EOS platforms simultaneously with an instrument on the Tropical Rainfall Measuring Mission (TRMM) spacecraft, which has an orbital inclination of 35 degrees. In addition, to reduce the uncertainty in data interpretation and to improve the consistency between the cloud parameters and the radiation fields, CERES includes cloud imager data and other atmospheric parameters. The CERES instruments fly on the TRMM spacecraft, on the EOS-AM platforms and on the EOS-PM platforms. The TRMM satellite carries one CERES instrument while the EOS satellites carry two CERES instruments, one operating in a fixed azimuth scanning mode and the other operating in a rotating azimuth scanning mode.

1.1 Document Overview

This document, the [CERES Grid Single Satellite Fluxes and Clouds and Compute Spatial Averages \(Subsystem 6.0\)](#) and [CERES Grid TOA and Surface Fluxes for Instantaneous Surface Product \(Subsystem 9.0\)](#) Release 3, Version 1 Test Plan, is part of the CERES Subsystems 6.0 and 9.0 Release 3 delivery package to the Langley Atmospheric Sciences Data Center (ASDC). It provides a description of the CERES Subsystems 6.0 and 9.0 Release 2 software and it explains the procedures for installing, executing, and testing the software. Procedures for validating the test results are also provided in this document. [Appendix A](#) contains a list of Acronyms, [Appendix B](#) is the Directory Structure Diagrams, and [Appendix C](#) provides the File Description Tables.

This document is organized as follows:

[Section 1.0 - Introduction](#)

[Section 2.0 - Software and Data File Installation Procedures](#)

[Section 3.0 - Automated Test and Evaluation Procedures](#)

[Section 4.0 - Test and Evaluation Procedures](#)

[Appendix A - Acronyms and Abbreviations](#)

[Appendix B - Directory Structure Diagrams](#)

[Appendix C - File Description Tables](#)

1.2 Subsystem Overview

CERES Grid Single Satellite Fluxes and Clouds and Compute Spatial Averages and CERES Grid TOA and Surface Fluxes for Instantaneous Surface Product Subsystems 6 and 9, provide the transformation from instantaneous, instrument-referenced data to spatially-averaged Earth-referenced data. These Subsystems perform two major functions: gridding and spatial averaging. The gridding function assigns CERES footprints to the appropriate regional hour box. The spatial averaging function computes spatial averages of the various radiative flux parameters and cloud properties over each regional hour box. After passing through these Subsystems, the CERES data lose their traceability to specific CERES measurements. The input products of Subsystem 6 and Subsystem 9 are Single Satellite CERES Footprint Radiative Fluxes and Clouds (CRS); Single Satellite TOA; Surface Flux and Cloud Pixels (SSF); and Meteorological, Ozone, and Aerosol (MOA). The output products are Gridded Single Satellite Fluxes and Clouds (FSW); Single Satellite TOA, Surface Flux and Cloud Pixels (SFC); and Post Meteorological, Ozone, and Aerosol (PMOA). Details of the CRS, SSF, MOA, FSW, and SFC data products can be found in the CERES Data Management System Data Products Catalog ([Reference 1](#)). PMOA is an intermediate product produced and used only by the Time Interpolation and Spatial Averaging (TISA) Subsystems. Subsystem 6 and Subsystem 9 consist of seven Product Generation Executives (PGE) which are described in the following sections.

1.2.1 FSW Main Processor (PGE 6.1P1)

The FSW Main Processor grids and spatially averages the footprint data from the CERES Cloud Radiation Swath (CRS) data product. The footprints are assigned to a regional hour box based on the Greenwich meridian time (GMT) time associated with the footprint. The footprints in each regional hour box are averaged together and written to an hourly FSW intermediate product.

1.2.2 FSW Postprocessor (PGE 6.2P1)

The FSW Postprocessor sorts and merges the hourly FSW intermediate products for a given month to produce a monthly FSW data product. The monthly FSW data product is organized in 180 zonal files which contain regional hour boxes sorted by region and then, by hour. The FSW Postprocessor only produces the monthly FSW zonal files for zones which contain regional hour box data.

1.2.3 FSW HDF Processor (PGE 6.3P1)

The FSW Hierarchical Data Format (HDF) Processor converts the monthly FSW zonal files for a given month into a monthly FSW HDF data product. The monthly FSW HDF data product is organized in 18 files containing 10 zones per file. The regional hour box data of a monthly FSW HDF data file are written to HDF VData where the records of the VData are sorted by region and then, by hour.

1.2.4 Post-MOA Processor (PGE 9.1P1)

The Post-MOA Processor processes the hourly MOA products for a given month to produce a monthly PMOA data product. The monthly PMOA data product is organized in four files which contain regional-hourly records sorted by region and then by hour for the CERES 1.0-degree nested regions. The Post-MOA Processor requires at least one day (24 hours) of MOA data in order to process; however, if available, it can process the whole month of MOA data, or it can process multiple days of MOA data. The PMOA data product is a subset of the MOA data product.

1.2.5 SFC Main Processor (PGE 9.2P1)

The SFC Main Processor grids and spatially averages the footprint data from the CERES SSF data product. The footprints are assigned to a regional hour box based on the GMT time associated with the footprint. The footprints in each regional hour box are averaged together and written to an hourly SFC intermediate product.

1.2.6 SFC Postprocessor (PGE 9.3P1)

The SFC Postprocessor sorts and merges the hourly SFC intermediate products for a given month to produce a monthly SFC data product. The monthly SFC data product is organized in 180 zonal files which contain regional hour boxes sorted by region and then by hour. The SFC Postprocessor only produces the monthly SFC zonal files for zones which contain regional hour box data.

1.2.7 SFC HDF Processor (PGE 9.4P1)

The SFC HDF Processor converts the monthly SFC zonal files for a given month into a monthly SFC HDF data product. The monthly SFC HDF data product is organized in 18 files containing 10 zones per file. The regional hour box data of a monthly SFC HDF data file are written to HDF VData where the records of the VData are sorted by region and then hour.

2.0 Software and Data File Installation Procedures

This section describes how to install the Subsystems 6.0 and 9.0 TISA Gridding software in preparation for making the necessary test runs at the Langley ASDC. The installation procedures include instructions for uncompressed and untarring the delivered tar files, properly defining environmental variables, and recompiling the TISA Gridding software.

2.1 Installation

Software/Data File Install Procedure:

In the installation instructions, use the following definitions for the TAG variable, which is included in the file name of the delivery files.

TAG = R{R#}-{SCCR#}

where R# = CERES Software Release TISA Gridding Number

 SCCR# = SCCR Number for TISA Gridding Delivery

Ex:

TAG= R2-050

For CERES Software Release 3 and TISA Gridding SCCR #274

1. The scripts, makefiles, and Process Control files in the Subsystems 6 and 9 delivery package expect the following environment variables to be set:

CERESENV - Pathname and script name for ceres-env.csh

PGSDIR - Directory for Toolkit libraries

PGSMMSG - Directory to store the PGS message files

PGSINC - Directory to store the PGS include files

F90 - Pointer to the SGI 64 bit compiler

CERESHOME - Top Directory for CERES Software

CERESLIB - Directory for CERESlib (\$CERESHOME/lib)

HDFDIR - Pointer to the HDF home directory

SS4_5 - Sampling Strategy for SSF

SS5 - Sampling Strategy for CRS

SS6 - Sampling Strategy for FSW

SS9 - Sampling Strategy for SFC

SS12 - Sampling Strategy for MOA

PS4_5 - Production Strategy for SSF

PS5 - Production Strategy for CRS

PS6 - Production Strategy for FSW

PS9 - Production Strategy for SFC

PS12 - Production Strategy for MOA

CC4_5 - Configuration Code for SSF

CC5 - Configuration Code for CRS

CC9_1 - Configuration Code for PMOA

CC6 - Configuration Code for FSW

CC6_3 - Configuration Code for FSW HDF
CC9 - Configuration Code for SFC
CC9_4 - Configuration Code for SFC HDF
CC12 - Configuration Code for MOA
SW9_1 - Software Configuration Code for PMOA
SW6 - Software Configuration Code for FSW
SW9 - Software Configuration Code for SFC
DATA9_1 - Data Configuration Code for PMOA
DATA6 - Data Configuration Code for FSW
DATA9 - Data Configuration Code for SFC

2. Change directory to the directory where you plan to install the TISA Gridding Subsystems. (The following instructions assume that the directory will be \$CERESHOME.)
3. Uncompress and untar the tar files by typing the following commands:

```
source $CERESENV (64-bit SGI version)
cp (or mv) TISAgri*__{TAG}.tar.Z $CERESHOME
cd $CERESHOME
uncompress TISAgri*__{TAG}.tar.Z
tar xf TISAgri_PMOA1_{TAG}.tar
tar xf TISAgri_PMOA2_{TAG}.tar
tar xf TISAgri_PMOA3_{TAG}.tar
tar xf TISAgri_PMOA4_{TAG}.tar
tar xf TISAgri_anc_{TAG}.tar
tar xf TISAgri_data1_{TAG}.tar
tar xf TISAgri_data9.0_Aqua_{TAG}.tar
tar xf TISAgri_src_{TAG}.tar
tar xf TISAgri_testCER9.2P1_A_Aqua_{TAG}.tar
tar xf TISAgri_testCER9.2P1_B_Aqua_{TAG}.tar
```

2.2 Compilation

Complete the following steps to compile the Tisa Gridding source code.

1. Create the message files and message include file

```
source $CERESENV (SGI 64-bit SGI version)
cd $CERESHOME/tisa_grid/smf
$CERESLIB/bin/smfccompile_all.csh
```

2. Compile the Tisa Gridding Subsystems code (6.0 & 9.0)

```
cd $CERESHOME/tisa_grid/src
```

To compile PGEs CER9.2P1 and CER9.3P1:

```
source $CERESENV (NAG -32-bit version)
makeall-9
```

To compile PGE CER9.4P1:
source \$CERESENV (SGI -64-bit version)
makeall-9

NOTES:

- The smfcompile_all.csh script and the makefile script will send a message to the screen at completion to indicate whether or not all operations performed were successful. If problems are encountered, contact one of the Tisa Gridding analysts before proceeding further.
- ASDC personnel may have an alternate procedure for compiling the message files. Any alternate procedure should copy all message include files to the \$PGSINC directory and all message files to the \$PGSMSG directory.
- The following executables will be created in the **\$CERESHOME/tisa_grid/bin** directory:

tisa_grid_sfc_hdf_processor.exe
tisa_grid_main_processor.exe
tisa_grid_post_processor.exe

- The following executables will be created in the **\$CERESHOME/tisa_grid/test_suites/CER9.4P1** directory.

hcmp

3.0 Automated Test and Evaluation Procedures

This section gives instructions on how to run a script that automates the Tisa Gridding test and evaluation procedures. Anyone who wishes to manually execute these procedures should skip to Section 4.0.

3.1 Checking Inputs

The first actions performed by the automated test script will be to check the inputs needed for PGEs CER9.1P1, CER9.2P1, CER6.1.

For PGE CER9.1P1, the delivered input MOA files need to be copied to the MOA output directory if they do not already exist there. If additional files are present in the directory for the same data month and with the same ID codes, then the resulting test output will differ from the expected output. The automated script will give the tester the option to copy delivered input files, if necessary, and to remove additional files from that directory, if they exist. If the tester is not prompted for these actions, then no action is necessary.

For CER9.2P1, the delivered input SSF files need to be copied to the SSF output directory prior to testing if they do not already exist there. The automated script will give the tester the option of doing this. If the tester is not prompted for this action, then no action is necessary.

For CER6.1P1, the delivered input CRS files need to be copied to the CRS output directory prior to testing if they do not already exist there. The automated script will give the tester the option of doing this. If the tester is not prompted for this action, then no action is necessary.

WARNING: Do not add or remove files without first checking with analysts who might be doing other tests with files in these directories. Your actions could adversely affect their tests.

3.2 Executing the Automated Procedures

| Complete the following steps to run the automated test and evaluation procedures.

```
source $CERESENV (SGI 64-bit version)
cd $CERESHOME/tisa_grid/test_suites
```

| The **runttest** script tests Subsystem 9 PGEs CER9.2P1, CER9.3P1, CER9.4P1 using **Aqua** data. If all the jobs execute successfully, the script evaluates the output to determine whether or not the test was successful. This entire process takes about an hour.

| **NOTE:** Differences in the LogReport file for PGE CER9.3P1 can be ignored if the reported difference is a WARNING message about the SGI compiler lib-4211 error. Any other difference signifies an unsuccessful test.

3.3 Test Output

The following files are created during a successful execution of the test procedures:

In the \$CERESHOME/tisa_grid/rcf/pif directory:

CER9.2P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.2002091001
CER9.2P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.2002091002
CER9.2P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.2002091003
CER9.2P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.20020910012
CER9.2P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.20020910013
CER9.2P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.20020910014
CER9.3P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.200209
CER9.4P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.200209

In the \$CERESHOME/tisa_grid/rcf/pcf directory:

CER9.2P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.2002091001
CER9.2P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.2002091002
CER9.2P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.2002091003
CER9.2P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.20020910012
CER9.2P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.20020910013
CER9.2P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.20020910014
CER9.3P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.200209
CER9.4P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.200209

In the \$CERESHOME/tisa_grid/data/out_comp/data/PMOA directory:

In the \$CERESHOME/tisa_grid/data/int_prod/FSW_hour directory:

In the \$CERESHOME/tisa_grid/data/out_comp/data/FSW directory:

In the \$CERESHOME/tisa_grid/data/out_comp/data/FSW_hdf directory:

In the \$CERESHOME/tisa_grid/data/int_prod/SFC_hour directory:

CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091001
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091001.met
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091002
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091002.met
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091003
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091003.met
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.20020910012
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.20020910012.met
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.20020910013
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.20020910013.met

CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.20020910014
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.20020910014.met

In the \$CERESHOME/tisa_grid/data/out_comp/data/SFC directory:

CER_SFCCB_Aqua-FM4-MODIS_TestSuite_000001.200209Znnn
CER_SFCCB_Aqua-FM4-MODIS_TestSuite_000001.200209Znnn.met

where nnn = 001 .. 180.

CER_MQCRP_Aqua-FM4-MODIS_TestSuite_000001.200209
CER_MQCRP_Aqua-FM4-MODIS_TestSuite_000001.200209.met

In the \$CERESHOME/tisa_grid/data/out_comp/data/SFC_hdf directory:

CER_SFC_Aqua-FM4-MODIS_TestSuite_111111.200209Znn
CER_SFC_Aqua-FM4-MODIS_TestSuite_111111.200209Znn.met

where nn = 01 .. 36.

\$CERESHOME/tisa_grid/data/runlogs:

CER9.2P1_LogReport_Aqua-FM4-MODIS_TestSuite_000001.2002091001
CER9.2P1_LogReport_Aqua-FM4-MODIS_TestSuite_000001.2002091002
CER9.2P1_LogReport_Aqua-FM4-MODIS_TestSuite_000001.2002091003
CER9.2P1_LogReport_Aqua-FM4-MODIS_TestSuite_000001.2002091012
CER9.2P1_LogReport_Aqua-FM4-MODIS_TestSuite_000001.2002091013
CER9.2P1_LogReport_Aqua-FM4-MODIS_TestSuite_000001.2002091014
CER9.2P1_LogStatus_Aqua-FM4-MODIS_TestSuite_000001.2002091001
CER9.2P1_LogStatus_Aqua-FM4-MODIS_TestSuite_000001.2002091002
CER9.2P1_LogStatus_Aqua-FM4-MODIS_TestSuite_000001.2002091003
CER9.2P1_LogStatus_Aqua-FM4-MODIS_TestSuite_000001.2002091012
CER9.2P1_LogStatus_Aqua-FM4-MODIS_TestSuite_000001.2002091013
CER9.2P1_LogStatus_Aqua-FM4-MODIS_TestSuite_000001.2002091014
CER9.2P1_LogUser_Aqua-FM4-MODIS_TestSuite_000001.2002091001
CER9.2P1_LogUser_Aqua-FM4-MODIS_TestSuite_000001.2002091002
CER9.2P1_LogUser_Aqua-FM4-MODIS_TestSuite_000001.2002091003
CER9.2P1_LogUser_Aqua-FM4-MODIS_TestSuite_000001.2002091012
CER9.2P1_LogUser_Aqua-FM4-MODIS_TestSuite_000001.2002091013
CER9.2P1_LogUser_Aqua-FM4-MODIS_TestSuite_000001.2002091014

CER9.3P1_LogReport_Aqua-FM4-MODIS_TestSuite_000001.200209
CER9.3P1_LogStatus_Aqua-FM4-MODIS_TestSuite_000001.200209
CER9.3P1_LogUser_Aqua-FM4-MODIS_TestSuite_000001.200209

CER9.4P1_LogReport_Aqua-FM4-MODIS_TestSuite_111111.200209
CER9.4P1_LogStatus_Aqua-FM4-MODIS_TestSuite_111111.200209
CER9.4P1_LogUser_Aqua-FM4-MODIS_TestSuite_111111.200209

4.0 Manual Test and Evaluation Procedures

This section provides general information on how to execute Subsystems 6.0 and 9.0 and provides an overview of the test and evaluation procedures. It includes a description of what is being tested and the order in which the tests should be performed.

4.1 CER9.1P1: Post-MOA Processor, TRMM Processing

This section covers the PMOA processing which is needed for the Subsystem 6 testing with TRMM data. The output from this processing is not checked for correctness because the test suite expected output matches the output from the Post-MOA Processor, Terra Processing, described in [Section 4.2](#).

4.1.1 Stand Alone Test Procedures

Before testing PGE CER9.1P1, source the appropriate environment scripts and then set some additional general environment variables.

```
source $CERESENV (SGI 64-bit version)
cd $CERESHOME/tisa_grid/test_suites
source env-variable-test1-set.csh
source $CERESHOME/tisa_grid/TISAgrib-env.csh
set BINDIR = $CERESHOME/tisa_grid/bin
set EXPDIR = $CERESHOME/tisa_grid/data/out_exp/CER9.1P1
cd $CERESHOME/tisa_grid/test_suites/CER9.1P1
```

4.1.1.1 Checking Inputs

The delivered input MOA files need to be copied to the MOA output directory if they do not already exist there. If additional files exist in the regridmoa directory for the same data month and with the same naming codes, then the resulting output will differ from the expected output.

The following commands will give the tester the option to copy delivered input files, if necessary, and to remove additional files from that directory, if they exist.

check_inputs.csh

If nothing happens when this script is executed, then no action is necessary.

WARNING: Do not add or remove files without first checking with analysts who might be doing other tests with files in the regridmoa directory. Your actions could adversely affect their tests.

4.1.1.2 PCF Generator

The Post-MOA processor references a Process Control File (PCF) for file names, paths, and runtime parameters. The test PCF is created by executing an ASCII file generator and then using its output as input to the PCF generator.

1. Pre-job cleanup

```
$BINDIR/clean 9.1 199801
```

2. Generate the ASCII input file.

```
$BINDIR/input_gen_9.1P1.csh 1998 02
```

The following ASCII input file will be created in **\$CERESHOME/tisa_grid/rcf/pif**:

```
CER9.1P1_PCFin_CERES_ECMWF-GEOS2_009010.199801
```

3. Generate the PCF.

```
set PIFDIR = $CERESHOME/tisa_grid/rcf/pif
set PCFin = $PIFDIR/CER9.1P1_PCFin_CERES_ECMWF-GEOS2_009010.199801
$BINDIR/pcf_gen_9.1P1.csh $PCFin
```

The following ASCII PCF files will be created in **\$CERESHOME/tisa_grid/rcf/pcf**:

4. The generated PCF is not compared to expected output because the expected output for PGE CER9.1P1 matches the output for the Post-MOA Processor, Terra Processing, described in [Section 4.2](#).

4.1.1.3 Execution

The Post-MOA processor is run by executing the `tisa_post_moa_processor.csh` script.

```
set PCFDIR = $CERESHOME/tisa_grid/rcf/pcf
set PCF = $PCFDIR/CER9.1P1_PCF_CERES_ECMWF-GEOS2_009010.199801
$BINDIR/tisa_post_moa_processor.csh $PCF
```

After job completion of the Post-MOA processor, PGE CER9.1P1, the following files will have been created:

In the **\$CERESHOME/tisa_grid/data/out_comp/data/PMOA** directory:

In the **\$CERESHOME/tisa_grid/data/runlogs** directory:

4.1.1.4 Exit Codes

All TISA Gridding software terminates using the CERES-defined EXIT CODES for the Langley TRMM Information System (LaTIS). Successful completion is indicated by an exit code of 0.

4.1.1.5 Test Summary

The UNIX time utility yielded the following results when the test was run on thunder:
960.1u 62.2s 17:07 0+0k 360880k 2007+4io 46pf+0w

4.1.2 Evaluation Procedures

4.1.2.1 Output Evaluation

The output from this processing is not compared to expected output because the expected output for PGE CER9.1P1 matches the output from the Post-MOA Processor, Terra Processing (see [Section 4.2](#)).

4.1.3 Solutions to Possible Problems

In the event of problems, contact one of the TISA Gridding analysts.

4.2 CER9.1P1: Post-MOA Processor, Terra Processing

4.2.1 Stand Alone Test Procedures

Before testing PGE CER9.1P1, source the appropriate environment scripts and then set some additional general environment variables.

```
source $CERESENV (SGI 64-bit version)
cd $CERESHOME/tisa_grid/test_suites
source env-variable-test-set.csh
source $CERESHOME/tisa_grid/TISAgrib-env.csh
set BINDIR = $CERESHOME/tisa_grid/bin
set EXPDIR = $CERESHOME/tisa_grid/data/out_exp/CER9.1P1
cd $CERESHOME/tisa_grid/test_suites/CER9.1P1
```

4.2.1.1 Checking Inputs

The delivered input MOA files need to be copied to the MOA output directory if they do not already exist there. If additional files exist in the regridmoa directory for the same data month and with the same naming codes, then the resulting output will differ from the expected output.

The following commands will give the tester the option to copy delivered input files, if necessary, and to remove additional files from that directory, if they exist.

check_inputs.csh

If nothing happens when this script is executed, then no action is necessary.

WARNING: Do not add or remove files without first checking with analysts who might be doing other tests with files in the regridmoa directory. Your actions could adversely affect their tests.

4.2.1.2 PCF Generator

The Post-MOA processor references a Process Control File (PCF) for file names, paths, and runtime parameters. The test PCF is created by executing an ASCII file generator and then using its output as input to the PCF generator.

1. Pre-job cleanup

\$BINDIR/clean 9.1 200012

2. Generate the ASCII input file.

\$BINDIR/input_gen_9.1P1.csh 2000 12

The following ASCII input file will be created in **\$CERESHOME/tisa_grid/rcf/pif**:

3. Generate the PCF.

```
set PIFDIR = $CERESHOME/tisa_grid/rcf/pif
set PCFin = $PIFDIR/CER9.1P1_PCFin_CERES_ECMWF-GEOS3_009010.200012
$BINDIR/pcf_gen_9.1P1.csh $PCFin
```

The following ASCII PCF files will be created in **\$CERESHOME/tisa_grid/rcf/pcf**:

```
cd $CERESHOME/tisa_grid/test_suites/CER9.1P1
$CERESLIB/bin/setVariables.csh Test
cp $EXPDIR/variables-Exp $CERESHOME/tisa_grid/test_suites/CER9.1P1/variables-
Exp
```

4. Compare the generated PCF to the one supplied with the delivery:

eval_runttest.csh 2

4.2.1.3 Execution

The Post-MOA processor is run by executing the `tisa_post_moa_processor.csh` script.

```
set PCFDIR = $CERESHOME/tisa_grid/rcf/pcf
set PCF = $PCFDIR/CER9.1P1_PCF_CERES_ECMWF-GEOS3_009010.200012
$BINDIR/tisa_post_moa_processor.csh $PCF
```

After job completion of the Post-MOA processor, PGE CER9.1P1, the following files will have been created:

In the **\$CERESHOME/tisa_grid/data/out_comp/data/PMOA** directory:

\$CERESLIB/bin/setVariables.csh Test

The following file will have been created:

\$variables-Test

NOTE: It is important that the PGE execution and the creation of the above file be done on the same day. If the day differs then the logfiles, .met files, and test evaluations will not be successful.

In the **\$CERESHOME/tisa_grid/data/runlogs** directory:

4.2.1.4 Exit Codes

All TISA Gridding software terminates using the CERES-defined EXIT CODES for the Langley TRMM Information System (LaTIS). Successful completion is indicated by an exit code of 0.

4.2.1.5 Test Summary

The UNIX time utility yielded the following results when the test was run on thunder:
960.1u 62.2s 17:07 0+0k 360880k 2007+4io 46pf+0w

4.2.2 Evaluation Procedures

4.2.2.1 Output Evaluation

Execute the following commands to compare PGE CER9.1P1 generated output with expected output. The eval_runttest.csh script will check the following outputs: (3) Logfiles, (4) .met files, and (1) PMOA Output files.

```
cd $CERESHOME/tisa_grid/test_suites/CER9.1P1  
eval_runttest.csh 3  
eval_runttest.csh 4  
eval_runttest.csh 1
```

There should be no reported differences.

4.2.3 Solutions to Possible Problems

In the event of problems, contact one of the TISA Gridding analysts.

4.3 CER6.1P1: FSW Main Processor

4.3.1 Stand Alone Test Procedures

Before testing PGE CER6.1P1, source the appropriate environment scripts and then set some additional general environment variables.

```
source $CERESENV (SGI 64-bit version)
*** TRMM ***
  source $CERESHOME/tisa_grid/test_suites/env-variable-TRMM-test-set.csh

*** Terra ***
  source $CERESHOME/tisa_grid/test_suites/env-variable-Terra-test-set.csh

source $CERESHOME/tisa_grid/TISAgrib-env.csh
set BINDIR = $CERESHOME/tisa_grid/bin
set EXPDIR = $CERESHOME/tisa_grid/data/out_exp/CER6.1P1
cd $CERESHOME/tisa_grid/test_suites/CER6.1P1
```

4.3.1.1 Checking Inputs

The delivered input CRSB files need to be copied to the output directory prior to testing if they do not already exist there. The following commands will invoke a script that will give the tester the option of doing this.

```
*** TRMM ***
check_inputs.csh

*** Terra ***
check_inputs1.csh
```

If nothing happens when this script is executed, then no action is necessary.

WARNING: Do not add files without first checking with analysts who might be doing other tests with FSW files. Your actions could adversely affect their tests.

NOTE: PGE CER6.1P1 uses the output produced from testing PGE CER9.1P1.

4.3.1.2 PCF Generator

The FSW main processor references a Process Control File (PCF) for file names, paths, and runtime parameters. The test PCF is created by executing an ASCII file generator and then using its output as input to the PCF generator.

1. Pre-job cleanup

***** TRMM:**

```
$BINDIR/clean 6.1 1998010101  
$BINDIR/clean 6.1 1998010102  
$BINDIR/clean 6.1 1998010103
```

***** Terra:**

```
$BINDIR/clean 6.1 2001010301  
$BINDIR/clean 6.1 2001010302  
$BINDIR/clean 6.1 2001010303
```

2. Generate the ASCII input files.

***** TRMM:**

```
$BINDIR/input_gen_6.1P1.csh 1998010101  
$BINDIR/input_gen_6.1P1.csh 1998010102  
$BINDIR/input_gen_6.1P1.csh 1998010103
```

***** Terra:**

```
$BINDIR/input_gen_6.1P1.csh 2001010301  
$BINDIR/input_gen_6.1P1.csh 2001010302  
$BINDIR/input_gen_6.1P1.csh 2001010303
```

The following ASCII input files will be created in **\$CERESHOME/tisa_grid/rcf/pif:**

***** TRMM:**

```
CER6.1P1_PCFin_TRMM-PFM-VIRS_Validation_000001.1998010101  
CER6.1P1_PCFin_TRMM-PFM-VIRS_Validation_000001.1998010102  
CER6.1P1_PCFin_TRMM-PFM-VIRS_Validation_000001.1998010103
```

***** Terra:**

```
CER6.1P1_PCFin_Terra-FM2-MODIS_Validation_000001.2001010301  
CER6.1P1_PCFin_Terra-FM2-MODIS_Validation_000001.2001010302  
CER6.1P1_PCFin_Terra-FM2-MODIS_Validation_000001.2001010303
```

3. Generate the PCFs.

```
set PIFDIR = $CERESHOME/tisa_grid/rcf/pif
```

***** TRMM:**

```
set PCFin = $PIFDIR/CER6.1P1_PCFin_TRMM-PFM-  
          VIRS_Validation_000001.1998010101  
$BINDIR/pcf_gen_6.1P1.csh $PCFin  
set PCFin = $PIFDIR/CER6.1P1_PCFin_TRMM-PFM-  
          VIRS_Validation_000001.1998010102  
$BINDIR/pcf_gen_6.1P1.csh $PCFin
```

```

set PCFin = $PIFDIR/CER6.1P1_PCFin_TRMM-PFM-
    VIRS_Validation_000001.1998010103
$BINDIR/pcf_gen_6.1P1.csh $PCFin

*** Terra:
set PCFin = $PIFDIR/CER6.1P1_PCFin_Terra-FM2-
    MODIS_Validation_000001.2001010301
$BINDIR/pcf_gen_6.1P1.csh $PCFin
set PCFin = $PIFDIR/CER6.1P1_PCFin_Terra-FM2-
    MODIS_Validation_000001.2001010302
$BINDIR/pcf_gen_6.1P1.csh $PCFin
set PCFin = $PIFDIR/CER6.1P1_PCFin_Terra-FM2-
    MODIS_Validation_000001.2001010303
$BINDIR/pcf_gen_6.1P1.csh $PCFin

```

The following ASCII PCF files will be created in **\$CERESHOME/tisa_grid/rcf/pcf:**

CER6.1P1_PCF_TRMM-PFM-VIRS_Validation_000001.1998010101
 CER6.1P1_PCF_TRMM-PFM-VIRS_Validation_000001.1998010102
 CER6.1P1_PCF_TRMM-PFM-VIRS_Validation_000001.1998010103

CER6.1P1_PCF_Terra-FM2-MODIS_Validation_000001.2001010301
 CER6.1P1_PCF_Terra-FM2-MODIS_Validation_000001.2001010302
 CER6.1P1_PCF_Terra-FM2-MODIS_Validation_000001.2001010303

```

cd $CERESHOME/tisa_grid/test_suites/CER6.1P1
$CERESLIB/bin/setVariables.csh Test
cp $EXPDIR/variables-Exp $CERESHOME/tisa_grid/test_suites/CER6.1P1/variables-
    Exp

```

4. Compare the generated PCFs to the one supplied with the delivery

```

*** TRMM:
eval_runttest.csh 2

```

```

*** Terra:
eval_runttest1.csh 2

```

The only differences between the files should be in the directory paths where the tests were run.

4.3.1.3 Execution

The FSW main processor is run by executing the tisa_grid_main_processor.csh script.

```
set PCFDIR = $CERESHOME/tisa_grid/rcf/pcf
```

***** TRMM:**

```
set PCF = $PCFDIR/CER6.1P1_PCF_TRMM-PFM-
    VIRS_Validation_000001.1998010101
$BINDIR/tisa_grid_main_processor.csh $PCF
set PCF = $PCFDIR/CER6.1P1_PCF_TRMM-PFM-
    VIRS_Validation_000001.1998010102
$BINDIR/tisa_grid_main_processor.csh $PCF
set PCF = $PCFDIR/CER6.1P1_PCF_TRMM-PFM-
    VIRS_Validation_000001.1998010103
$BINDIR/tisa_grid_main_processor.csh $PCF
```

***** Terra:**

```
set PCF = $PCFDIR/CER6.1P1_PCF_Terra-FM2-
    MODIS_Validation_000001.2001010301
$BINDIR/tisa_grid_main_processor.csh $PCF
set PCF = $PCFDIR/CER6.1P1_PCF_Terra-FM2-
    MODIS_Validation_000001.2001010302
$BINDIR/tisa_grid_main_processor.csh $PCF
set PCF = $PCFDIR/CER6.1P1_PCF_Terra-FM2-
    MODIS_Validation_000001.2001010303
$BINDIR/tisa_grid_main_processor.csh $PCF
```

After job completion of the FSW main processor, PGE CER6.1P1, the following files will have been created:

In the **\$CERESHOME/tisa_grid/data/int_prod/FSW_hour** directory:

CER_FSW-HR_TRMM-PFM-VIRS_Validation_000001.1998010101
 CER_FSW-HR_TRMM-PFM-VIRS_Validation_000001.1998010101.met
 CER_FSW-HR_TRMM-PFM-VIRS_Validation_000001.1998010102
 CER_FSW-HR_TRMM-PFM-VIRS_Validation_000001.1998010102.met
 CER_FSW-HR_TRMM-PFM-VIRS_Validation_000001.1998010103
 CER_FSW-HR_TRMM-PFM-VIRS_Validation_000001.1998010103.met

CER_FSW-HR_Terra-FM2-MODIS_Validation_000001.2001010301
 CER_FSW-HR_Terra-FM2-MODIS_Validation_000001.2001010301.met
 CER_FSW-HR_Terra-FM2-MODIS_Validation_000001.2001010302
 CER_FSW-HR_Terra-FM2-MODIS_Validation_000001.2001010302.met
 CER_FSW-HR_Terra-FM2-MODIS_Validation_000001.2001010303
 CER_FSW-HR_Terra-FM2-MODIS_Validation_000001.2001010303.met

In the **\$CERESHOME/tisa_grid/data/runlogs** directory:

CER6.1P1_LogReport_TRMM-PFM-VIRS_Validation_000001.1998010101
 CER6.1P1_LogReport_TRMM-PFM-VIRS_Validation_000001.1998010102

CER6.1P1_LogReport_TRMM-PFM-VIRS_Validation_000001.1998010103
CER6.1P1_LogStatus_TRMM-PFM-VIRS_Validation_000001.1998010101
CER6.1P1_LogStatus_TRMM-PFM-VIRS_Validation_000001.1998010102
CER6.1P1_LogStatus_TRMM-PFM-VIRS_Validation_000001.1998010103
CER6.1P1_LogUser_TRMM-PFM-VIRS_Validation_000001.1998010101
CER6.1P1_LogUser_TRMM-PFM-VIRS_Validation_000001.1998010102
CER6.1P1_LogUser_TRMM-PFM-VIRS_Validation_000001.1998010103

CER6.1P1_LogReport_Terra-FM2-MODIS_Validation_000001.2001010301
CER6.1P1_LogReport_Terra-FM2-MODIS_Validation_000001.2001010302
CER6.1P1_LogReport_Terra-FM2-MODIS_Validation_000001.2001010303
CER6.1P1_LogStatus_Terra-FM2-MODIS_Validation_000001.2001010301
CER6.1P1_LogStatus_Terra-FM2-MODIS_Validation_000001.2001010302
CER6.1P1_LogStatus_Terra-FM2-MODIS_Validation_000001.2001010303
CER6.1P1_LogUser_Terra-FM2-MODIS_Validation_000001.2001010301
CER6.1P1_LogUser_Terra-FM2-MODIS_Validation_000001.2001010302
CER6.1P1_LogUser_Terra-FM2-MODIS_Validation_000001.2001010303

\$CERESLIB/bin/setVariables.csh Test

The following file will have been created:

\$CERESHOME/tisa_grid/test_suites/CER6.1P1/variables-Test

NOTE: It is important that the PGE execution and the creation of the above file be done on the same day. If the day differs then the logfiles, .met files, and test evaluations will not be successful.

4.3.1.4 Exit Codes

All TISA Gridding software terminates using the CERES-defined EXIT CODES for the Langley TRMM Information System (LaTIS). Successful completion is indicated by an exit code of 0.

4.3.1.5 Test Summary

The UNIX time utility yielded the following results for ONE of the CER6.1P1 jobs, when the test was run on thunder: Evaluation Procedures

224.4u 64.6s 5:13 0+0k 312048k 10247+0io 29pf+0w

4.3.1.6 Output Evaluation

Execute the following commands to compare PGE CER6.1P1 generated output with expected output. The eval_runttest.csh script will check the following outputs: (3) QA files, (4) Logfiles, (5) .met files, and (1) FSW Hour Output files. **Note: QA files are optional. May not generate.**

cd \$CERESHOME/tisa_grid/test_suites/CER6.1P1

***** TRMM:**

eval_runttest.csh 4
eval_runttest.csh 5
eval_runttest.csh 1

***** Terra:**

eval_runttest1.csh 4
eval_runttest1.csh 5
eval_runttest1.csh 1

There should be no reported differences.

4.3.2 Solutions to Possible Problems

In the event of problems, contact one of the TISA Gridding analysts.

4.4 CER6.2P1: FSW Postprocessor

4.4.1 Stand Alone Test Procedures

Before testing PGE CER6.2P1, source the appropriate environment scripts and copy the test data to the appropriate directory.

```
source $CERESENV(SGI 64-bit version)
*** TRMM ***
  source $CERESHOME/tisa_grid/test_suites/env-variable-TRMM-test-set.csh

*** Terra ***
  source $CERESHOME/tisa_grid/test_suites/env-variable-Terra-test-set.csh

source $CERESHOME/tisa_grid/TISAgrib-env.csh
set TISAGRID = $CERESHOME/tisa_grid
set BINDIR = $TISAGRID/bin
set EXPDIR = $CERESHOME/tisa_grid/data/out_exp/CER6.2P1
```

NOTE: PGE CER6.2P1 uses the output produced from testing PGE CER6.1P1.

4.4.1.1 PCF Generator

The FSW postprocessor references a Process Control File (PCF) for file names, paths, and runtime parameters. The test PCF is created by executing an ASCII file generator and then using its output as input to the PCF generator.

1. Pre-job cleanup

```
*** TRMM ***
$BINDIR/clean 6.2 199801
```

```
*** Terra ***
$BINDIR/clean 6.2 200101
```

2. Generate the ASCII input file.

```
*** TRMM ***
$BINDIR/input_gen_6.2P1.csh 199801
```

```
*** Terra ***
$BINDIR/input_gen_6.2P1.csh 200101
```

The following ASCII input file will be created in **\$CERESHOME/tisa_grid/rcf/pif**:

```
*** TRMM ***
CER6.2P1_PCFin_TRMM-PFM-VIRS_Validation_000001.199801
```

***** Terra *****

CER6.2P1_PCFin_Terra-FM2-MODIS_Validation_000001.200101

3. Generate the PCFs.

***** TRMM *****

```
set PIFDIR = $CERESHOME/tisa_grid/rcf/pif
set PCFin = $PIFDIR/CER6.2P1_PCFin_TRMM-PFM-
    VIRS_Validation_000001.199801
$BINDIR/pcf_gen_6.2P1.csh $PCFin
```

***** Terra *****

```
set PIFDIR = $CERESHOME/tisa_grid/rcf/pif
set PCFin = $PIFDIR/CER6.2P1_PCFin_Terra-FM2-
    MODIS_Validation_000001.200101
$BINDIR/pcf_gen_6.2P1.csh $PCFin
```

The following PCF files will be created in **\$CERESHOME/tisa_grid/rcf/pcf**:

***** TRMM *****

CER6.2P1_PCF_TRMM-PFM-VIRS_Validation_000001.199801

***** Terra *****

CER6.2P1_PCF_Terra-FM2-MODIS_Validation_000001.200101

```
cd $CERESHOME/tisa_grid/test_suites/CER6.2P1
cp $EXPDIR/variables-Exp $CERESHOME/tisa_grid/test_suites/CER6.2P1/variables-
    Exp
$CERESLIB/bin/setVariables.csh Test
```

4. Compare the generated PCFs to the one supplied with the delivery:

***** TRMM *****

eval_runttest.csh 2

***** Terra *****

eval_runttest1.csh 2

The only differences between the files should be in the directory paths where the tests were run.

4.4.1.2 Execution

The FSW postprocessor is run by executing the tisa_grid_post_processor.csh script. The clean script is run prior to job execution to remove files created during a previous test run.

```
set PCFDIR = $CERESHOME/tisa_grid/rcf/pcf
```

***** TRMM *****

```
set PCF = $PCFDIR/CER6.2P1_PCF_TRMM-PFM-VIRS_Validation_000001.199801
$BINDIR/tisa_grid_post_processor.csh $PCF
```

***** Terra *****

```
set PCF = $PCFDIR/CER6.2P1_PCF_Terra-FM2-MODIS_Validation_000001.200101
$BINDIR/tisa_grid_post_processor.csh $PCF
```

After job completion of the FSW postprocessor, PGE CER6.2P1, the following files will have been created:

In the **\$CERESHOME/tisa_grid/data/out_comp/data/FSW** directory:

***** TRMM *****

```
CER_FSWB_TRMM-PFM-VIRS_Validation_000001.199801Znnn
CER_FSWB_TRMM-PFM-VIRS_Validation_000001.199801Znnn.met
```

where nnn = 052 .. 129

***** Terra *****

```
CER_FSWB_Terra-FM2-MODIS_Validation_000001.200101Znnn
CER_FSWB_Terra-FM2-MODIS_Validation_000001.200101Znnn.met
```

where nnn = 001 .. 180.

```
CER_IQCRP_Terra-FM2-MODIS_Validation_000001.200101
CER_IQCRP_Terra-FM2-MODIS_Validation_000001.200101.met
```

In the **\$CERESHOME/tisa_grid/data/runlogs** directory:

***** TRMM *****

```
CER6.2P1_LogReport_TRMM-PFM-VIRS_Validation_000001.199801
CER6.2P1_LogStatus_TRMM-PFM-VIRS_Validation_000001.199801
CER6.2P1_LogUser_TRMM-PFM-VIRS_Validation_000001.199801
```

***** Terra *****

```
CER6.2P1_LogReport_Terra-FM2-MODIS_Validation_000001.200101
CER6.2P1_LogStatus_Terra-FM2-MODIS_Validation_000001.200101
CER6.2P1_LogUser_Terra-FM2-MODIS_Validation_000001.200101
```

\$CERESLIB/bin/setVariables.csh Test

The following file will have been created:

```
$CERESHOME/tisa_grid/test_suites/CER6.2P1/variables-Test
```

NOTE: It is important that the PGE execution and the creation of the above file be done on the same day. If the day differs then the logfiles, .met files, and test evaluations will not be successful.

4.4.1.3 Exit Codes

All TISA Gridding software terminates using the CERES-defined EXIT CODES for the Langley TRMM Information System (LaTIS). Successful completion is indicated by an exit code of 0.

4.4.1.4 Test Summary

The UNIX time utility yielded the following results for CER6.2P1 job, when the test was run on thunder: Evaluation Procedures

18.2u 12.1s 0:33 0+0k 1024880k 1550+344io 34pf+0w

4.4.2 Evaluation Procedures

4.4.2.1 Output Evaluation

Execute the following commands to compare PGE CER6.2P1 generated output with expected output. The eval_runttest.csh script will check the following outputs: (3) QA files, (4) Logfiles, (5) .met files, and (1) FSW Binary Output files.

```
cd $CERESHOME/tisa_grid/test_suites/CER6.2P1
```

```
*** TRMM ***
```

```
eval_runttest.csh 3  
eval_runttest.csh 4  
eval_runttest.csh 5  
eval_runttest.csh 1
```

```
*** Terra ***
```

```
eval_runttest1.csh 3  
eval_runttest1.csh 4  
eval_runttest1.csh 5  
eval_runttest1.csh 1
```

There should be no reported differences.

4.4.3 Solutions to Possible Problems

In the event of problems, contact one of the TISA Gridding analysts.

4.5 CER6.3P1: FSW HDF Processor

4.5.1 Stand Alone Test Procedures

Before testing PGE CER6.3P1, source the appropriate environment scripts and copy the test data to the appropriate directory.

```
source $CERESENV (SGI 64-bit version)

*** TRMM ***
source $CERESHOME/tisa_grid/test_suites/env-variable-TRMM-test-set.csh

*** Terra ***
source $CERESHOME/tisa_grid/test_suites/env-variable-Terra-test-set.csh

source $CERESHOME/tisa_grid/TISAgid-env.csh
set TISAGRID = $CERESHOME/tisa_grid
set BINDIR = $TISAGRID/bin
set EXPDIR = $CERESHOME/tisa_grid/data/out_exp/CER6.3P1
setenv GENDIR $CERESHOME/tisa_grid/data/out_comp/data/FSW_hdf
```

NOTE: PGE CER6.3P1 uses the output produced from testing PGE CER6.2P1.

4.5.1.1 PCF Generator

The FSW HDF postprocessor references a Process Control File (PCF) for file names, paths, and runtime parameters. The test PCF is created by executing an ASCII file generator and then using its output as input to the PCF generator.

1. Pre-job cleanup

```
*** TRMM ***
$BINDIR/clean 6.3 199801
```

```
*** Terra ***
$BINDIR/clean 6.3 200101
```

2. Generate the ASCII input file.

```
*** TRMM ***
$BINDIR/input_gen_6.3P1.csh 199801
```

```
*** Terra ***
$BINDIR/input_gen_6.3P1.csh 200101
```

The following ASCII input file will be created in **\$CERESHOME/tisa_grid/ref/pif**:

***** TRMM *****

CER6.3P1_PCFin_TRMM-PFM-VIRS_Validation_111111.199801

***** Terra *****

CER6.3P1_PCFin_Terra-FM2-MODIS_Validation_111111.200101

3. Generate the PCFs.

***** TRMM *****

```
set PIFDIR = $CERESHOME/tisa_grid/rcf/pif
set PCFin = $PIFDIR/CER6.3P1_PCFin_TRMM-PFM-
    VIRS_Validation_111111.199801
$BINDIR/pcf_gen_6.3P1.csh $PCFin
```

***** Terra *****

```
set PIFDIR = $CERESHOME/tisa_grid/rcf/pif
set PCFin = $PIFDIR/CER6.3P1_PCFin_Terra-FM2-
    MODIS_Validation_111111.200101
$BINDIR/pcf_gen_6.3P1.csh $PCFin
```

The following PCF files will be created in **\$CERESHOME/tisa_grid/rcf/pcf**:

***** TRMM *****

CER6.3P1_PCF_TRMM-PFM-VIRS_Validation_111111.199801

***** Terra *****

CER6.3P1_PCF_Terra-FM2-MODIS_Validation_111111.200101

```
cd $CERESHOME/tisa_grid/test_suites/CER6.3P1
cp $EXPDIR/variables-Exp $CERESHOME/tisa_grid/test_suites/CER6.3P1/variables-
    Exp
$CERESLIB/bin/setVariables.csh Test
```

4. Compare the generated PCFs to the one supplied with the delivery:

***** TRMM *****

eval_runttest.csh 2

***** Terra *****

eval_runttest1.csh 2

The only differences between the files should be in the directory paths where the tests were run.

4.5.1.2 Execution

The FSW HDF postprocessor is run by executing the tisa_grid_fsw_hdf_processor.csh script. The clean script is run prior to job execution to remove files created during a previous test run.

***** TRMM*****

```
set PCFDIR = $CERESHOME/tisa_grid/rcf/pcf
set PCF = $PCFDIR/CER6.3P1_PCF_TRMM-PFM-VIRS_Validation_111111.199801
$BINDIR/tisa_grid_fsw_hdf_processor.csh $PCF
```

***** Terra*****

```
set PCFDIR = $CERESHOME/tisa_grid/rcf/pcf
set PCF = $PCFDIR/CER6.3P1_PCF_Terra-FM2-MODIS_Validation_111111.200101
$BINDIR/tisa_grid_fsw_hdf_processor.csh $PCF
```

After job completion of the FSW HDF processor, PGE CER6.3P1, the following files will have been created:

In the **\$CERESHOME/tisa_grid/data/out_comp/data/FSW_hdf** directory:

***** TRMM*****

```
CER_FSW_TRMM-PFM-VIRS_Validation_111111.199801Znn
CER_FSW_TRMM-PFM-VIRS_Validation_111111.199801Znnmet
```

where nnn = 06..13

***** Terra *****

```
CER_FSW_Terra-FM2-MODIS_Validation_111111.200101Znn
CER_FSW_Terra-FM2-MODIS_Validation_111111.200101Znnmet
```

where nnn = 01..60.

In the **\$CERESHOME/tisa_grid/data/runlogs** directory:

***** TRMM *****

```
CER6.3P1_LogReport_TRMM-PFM-VIRS_Validation_111111.199801
CER6.3P1_LogStatus_TRMM-PFM-VIRS_Validation_111111.199801
CER6.3P1_LogUser_TRMM-PFM-VIRS_Validation_111111.199801
```

***** Terra *****

```
CER6.3P1_LogReport_Terra-FM2-MODIS_Validation_111111.200101
CER6.3P1_LogStatus_Terra-FM2-MODIS_Validation_111111.200101
CER6.3P1_LogUser_Terra-FM2-MODIS_Validation_111111.200101
```

\$CERESLIB/bin/setVariables.csh Test

The following file will have been created:

```
$CERESHOME/tisa_grid/test_suites/CER6.3P1/variables-Test
```

NOTE: It is important that the PGE execution and the creation of the above file be done on the same day. If the day differs then the logfiles, .met files, and test evaluations will not be successful.

4.5.1.3 Exit Codes

All TISA Gridding software terminates using the CERES-defined EXIT CODES for the Langley TRMM Information System (LaTIS). Successful completion is indicated by an exit code of 0.

4.5.1.4 Test Summary

The UNIX time utility yielded the following results for CER6.3P1 job, when the test was run on thunder: Evaluation Procedures

125.5u 3.5s 2:14 0+0k 17168k 1787+64io 25pf+0w

4.5.2 Evaluation Procedures

4.5.2.1 Output Evaluation

Execute the following commands to compare PGE CER6.3P1 generated output with expected output. The eval_runttest.csh script will check the following outputs: (3) Logfiles, (4) .met files, and (1) FSW HDF Output files.

```
cd $CERESHOME/tisa_grid/test_suites/CER6.3P1

*** TRMM ***
eval_runttest.csh 3
eval_runttest.csh 4
eval_runttest.csh 1

*** Terra ****
eval_runttest1.csh 3
eval_runttest1.csh 4
eval_runttest1.csh 1
```

There should be no reported differences.

4.5.3 Solutions to Possible Problems

In the event of problems, contact one of the TISA Gridding analyst.

4.6 CER9.2P1: SFC Main Processor

4.6.1 Stand Alone Test Procedures

Before testing PGE CER9.2P1, source the appropriate environment scripts and then set some additional general environment variables.

```
source $CERESENV (SGI 64-bit version)
source $CERESHOME/tisa_grid/test_suites/env-variable-test-set.csh
source $CERESHOME/tisa_grid/TISAgrib-env.csh
set BINDIR = $CERESHOME/tisa_grid/bin
set EXPDIR = $CERESHOME/tisa_grid/data/out_exp/CER9.2P1
cd $CERESHOME/tisa_grid/test_suites/CER9.2P1
```

4.6.1.1 Checking Inputs

The delivered input SSF files need to be copied to the SSF output directory prior to testing if they do not already exist there. The following commands will invoke a script that will give the tester the option of doing this.

check_inputs.csh

If nothing happens when this script is executed, then no action is necessary.

WARNING: Do not add files without first checking with analysts who might be doing other tests with SSF files. Your actions could adversely affect their tests.

NOTE: PGE CER9.2P1 also uses the output produced from testing PGE CER9.1P1.

4.6.1.2 PCF Generator

The SFC main processor references a Process Control File (PCF) for file names, paths, and runtime parameters. The test PCF is created by executing an ASCII file generator and then using its output as input to the PCF generator.

1. Pre-job cleanup Terra

```
$BINDIR/clean 9.2 2002091001
$BINDIR/clean 9.2 2002091002
$BINDIR/clean 9.2 2002091003
$BINDIR/clean 9.2 2002091012
$BINDIR/clean 9.2 2002091013
$BINDIR/clean 9.2 2002091014
```

2. Generate the ASCII input files.

```
$BINDIR/input_gen_9.2P1.csh 2002091001
$BINDIR/input_gen_9.2P1.csh 2002091002
```

```
$BINDIR/input_gen_9.2P1.csh 2002091003
$BINDIR/input_gen_9.2P1.csh 2002091012
$BINDIR/input_gen_9.2P1.csh 2002091013
$BINDIR/input_gen_9.2P1.csh 2002091014
```

The following ASCII input files will be created in **\$CERESHOME/tisa_grid/rcf/pif**:

```
CER9.2P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.2002091001
CER9.2P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.2002091002
CER9.2P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.2002091003
CER9.2P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.20020910012
CER9.2P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.20020910013
CER9.2P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.20020910014
```

3. Generate the PCFs.

```
set PIFDIR = $CERESHOME/tisa_grid/rcf/pif

set PCFin = $PIFDIR/CER9.2P1_PCFin_Aqua-FM4-
    MODIS_TestSuite_000001.2002091001
$BINDIR/pcf_gen_9.2P1.csh $PCFin
set PCFin = $PIFDIR/CER9.2P1_PCFin_Aqua-FM4-
    MODIS_TestSuite_000001.2002091002
$BINDIR/pcf_gen_9.2P1.csh $PCFin
set PCFin = $PIFDIR/CER9.2P1_PCFin_Aqua-FM4-
    MODIS_TestSuite_000001.2002091003
$BINDIR/pcf_gen_9.2P1.csh $PCFin
set PCFin = $PIFDIR/CER9.2P1_PCFin_Aqua-FM4-
    MODIS_TestSuite_000001.2002091012
$BINDIR/pcf_gen_9.2P1.csh $PCFin
set PCFin = $PIFDIR/CER9.2P1_PCFin_Aqua-FM4-
    MODIS_TestSuite_000001.2002091013
$BINDIR/pcf_gen_9.2P1.csh $PCFin
set PCFin = $PIFDIR/CER9.2P1_PCFin_Aqua-FM4-
    MODIS_TestSuite_000001.2002091014
$BINDIR/pcf_gen_9.2P1.csh $PCFin
```

The following ASCII input files will be created in **\$CERESHOME/tisa_grid/rcf/pcf**:

```
CER9.2P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.2002091001
CER9.2P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.2002091002
CER9.2P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.2002091003
CER9.2P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.20020910012
CER9.2P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.20020910013
CER9.2P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.20020910014
```

```

cd $CERESHOME/tisa_grid/test_suites/CER9.2P1
cp $EXPDIR/variables-Exp $CERESHOME/tisa_grid/test_suites/CER9.2P1/variables-
    Exp
$CERESLIB/bin/setVariables.csh Test

```

4. Compare the generated PCFs to the ones supplied with the delivery:

```
eval_runttest.csh 2
```

4.6.1.3 Execution

The SFC main processor is run by executing the tisa_grid_main_processor.csh script.

```

set PCFDIR = $CERESHOME/tisa_grid/rcf/pcf

set PCF = $PCFDIR/CER9.2P1_PCF_Aqua-FM4-
    MODIS_TestSuite_000001.2002091001
$BINDIR/tisa_grid_main_processor.csh $PCF
set PCF = $PCFDIR/CER9.2P1_PCF_Aqua-FM4-
    MODIS_TestSuite_000001.2002091002
$BINDIR/tisa_grid_main_processor.csh $PCF
set PCF = $PCFDIR/CER9.2P1_PCF_Aqua-FM4-
    MODIS_TestSuite_000001.2002091003
$BINDIR/tisa_grid_main_processor.csh $PCF
set PCF = $PCFDIR/CER9.2P1_PCF_Aqua-FM4-
    MODIS_TestSuite_000001.2002091012
$BINDIR/tisa_grid_main_processor.csh $PCF
set PCF = $PCFDIR/CER9.2P1_PCF_Aqua-FM4-
    MODIS_TestSuite_000001.2002091013
$BINDIR/tisa_grid_main_processor.csh $PCF
set PCF = $PCFDIR/CER9.2P1_PCF_Aqua-FM4-
    MODIS_TestSuite_000001.2002091014
$BINDIR/tisa_grid_main_processor.csh $PCF

```

After job completion of the SFC main processor, PGE CER9.2P1, the following files will have been created:

In the **\$CERESHOME/tisa_grid/data/int_prod/SFC_hour** directory:

```

CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091001
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091001.met
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091002
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091002.met
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091003
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091003.met
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091012
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091012.met

```

CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091013
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091013.met
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091014
CER_SFC-HR_Aqua-FM4-MODIS_TestSuite_000001.2002091014.met

In the `$CERESHOME/tisa_grid/data/runlogs` directory:

CER9.2P1_LogReport_Aqua-FM4-MODIS_TestSuite_000001.2002091001
CER9.2P1_LogReport_Aqua-FM4-MODIS_TestSuite_000001.2002091002
CER9.2P1_LogReport_Aqua-FM4-MODIS_TestSuite_000001.2002091003
CER9.2P1_LogReport_Aqua-FM4-MODIS_TestSuite_000001.2002091012
CER9.2P1_LogReport_Aqua-FM4-MODIS_TestSuite_000001.2002091013
CER9.2P1_LogReport_Aqua-FM4-MODIS_TestSuite_000001.2002091014
CER9.2P1_LogStatus_Aqua-FM4-MODIS_TestSuite_000001.2002091001
CER9.2P1_LogStatus_Aqua-FM4-MODIS_TestSuite_000001.2002091002
CER9.2P1_LogStatus_Aqua-FM4-MODIS_TestSuite_000001.2002091003
CER9.2P1_LogStatus_Aqua-FM4-MODIS_TestSuite_000001.2002091012
CER9.2P1_LogStatus_Aqua-FM4-MODIS_TestSuite_000001.2002091013
CER9.2P1_LogStatus_Aqua-FM4-MODIS_TestSuite_000001.2002091014
CER9.2P1_LogUser_Aqua-FM4-MODIS_TestSuite_000001.2002091001
CER9.2P1_LogUser_Aqua-FM4-MODIS_TestSuite_000001.2002091002
CER9.2P1_LogUser_Aqua-FM4-MODIS_TestSuite_000001.2002091003
CER9.2P1_LogUser_Aqua-FM4-MODIS_TestSuite_000001.2002091012
CER9.2P1_LogUser_Aqua-FM4-MODIS_TestSuite_000001.2002091013
CER9.2P1_LogUser_Aqua-FM4-MODIS_TestSuite_000001.2002091014

\$CERESLIB/bin/setVariables.csh Test

The following file will have been created:

`$CERESHOME/tisa_grid/test_suites/CER9.2P1/variables-Test`

NOTE: It is important that the PGE execution and the creation of the above file be done on the same day. If the day differs then the logfiles, .met files, and test evaluations will not be successful.

4.6.1.4 Exit Codes

All TISA Gridding software terminates using the CERES-defined EXIT CODES for the Langley Terra Information System (LaTIS). Successful completion is indicated by an exit code of 0.

4.6.1.5 Test Summary

The UNIX time utility yielded the following results for ONE of the CER9.2P1 jobs, when the test was run on thunder:

245.3u 73.3s 6:12 0+0k 256928k 9539+0io 47pf+0w

4.6.2 Evaluation Procedures

4.6.2.1 Output Evaluation

Execute the following commands to compare PGE CER9.2P1 generated output with expected output. The eval_runttest.csh script will check the following outputs: (3) QA files, (4) Logfiles, (5) .met files, and (1) SFC Hour Output files.

```
cd $CERESHOME/tisa_grid/test_suites/CER9.2P1  
eval_runttest.csh 4  
eval_runttest.csh 5  
eval_runttest.csh 1
```

There should be no reported differences.

4.6.3 Solutions to Possible Problems

In the event of problems, contact one of the TISA Gridding analysts.

4.7 CER9.3P1: SFC Postprocessor

4.7.1 Stand Alone Test Procedures

Before testing PGE CER9.3P1, source the appropriate environment scripts and then set some additional general environment variables.

```
source $CERESENV (SGI Fortran 64-bit compiler version)
source $CERESHOME/tisa_grid/test_suites/env-variable-test-set.csh
source $CERESHOME/tisa_grid/TISAgrib-env.csh
set BINDIR = $CERESHOME/tisa_grid/bin
set EXPDIR = $CERESHOME/tisa_grid/data/out_exp/CER9.3P1
cd $CERESHOME/tisa_grid/test_suites/CER9.3P1
```

NOTE: PGE CER9.3P1 uses the output produced from testing PGE CER9.2P1.

4.7.1.1 PCF Generator

The SFC postprocessor references a Process Control File (PCF) for file names, paths, and runtime parameters. The test PCF is created by executing an ASCII file generator and then using its output as input to the PCF generator.

1. Pre-job cleanup

\$BINDIR/clean 9.3 200209

2. Generate the ASCII input file.

\$BINDIR/input_gen_9.3P1.csh 200209

The following ASCII input file will be created in **\$CERESHOME/tisa_grid/rcf/pif**:

CER9.3P1_PCFin_Aqua-FM4-MODIS_TestSuite_000001.200209

3. Generate the PCFs.

```
set PIFDIR = $CERESHOME/tisa_grid/rcf/pif
set PCFin = $PIFDIR/CER9.3P1_PCFin_Aqua-FM4-
MODIS_TestSuite_000001.200209
$BINDIR/pcf_gen_9.3P1.csh $PCFin
```

The following ASCII input file will be created in **\$CERESHOME/tisa_grid/rcf/pcf**:

CER9.3P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.200209

```
cd $CERESHOME/tisa_grid/test_suites/CER9.3P1
cp $EXPDIR/variables-Exp $CERESHOME/tisa_grid/test_suites/CER9.3P1/variables-
Exp
$CERESLIB/bin/setVariables.csh Test
```

4. Compare the generated PCFs to the one supplied with the delivery:

eval_runtest.csh 2

4.7.1.2 Execution

The SFC postprocessor is run by executing the tisa_grid_post_processor.csh script.

```
set PCFDIR = $CERESHOME/tisa_grid/rcf/pcf
set PCF = $PCFDIR/CER9.3P1_PCF_Aqua-FM4-MODIS_TestSuite_000001.200209
$BINDIR/tisa_grid_post_processor.csh $PCF
```

After job completion of the SFC postprocessor, PGE CER9.3P1, the following files will have been created:

In the **\$CERESHOME/tisa_grid/data/out_comp/data/SFC** directory:

```
CER_SFCB_Aqua-FM4-MODIS_TestSuite_000001.200209Znnn
CER_SFCB_Aqua-FM4-MODIS_TestSuite_000001.200209Znnn.met
```

where nnn = 001 .. 180.

```
CER_MQCRP_Aqua-FM4-MODIS_TestSuite_000001.200209
CER_MQCRP_Aqua-FM4-MODIS_TestSuite_000001.200209.met
```

In the **\$CERESHOME/tisa_grid/data/runlogs** directory:

```
CER9.3P1_LogReport_Aqua-FM4-MODIS_TestSuite_000001.200209
CER9.3P1_LogStatus_Aqua-FM4-MODIS_TestSuite_000001.200209
CER9.3P1_LogUser_Aqua-FM4-MODIS_TestSuite_000001.200209
```

\$CERESLIB/bin/setVariables.csh Test

The following file will have been created:

\$CERESHOME/tisa_grid/test_suites/CER9.3P1/variables-Test

NOTE: It is important that the PGE execution and the creation of the above file be done on the same day. If the day differs then the logfiles, .met files, and test evaluations will not be successful.

4.7.1.3 Exit Codes

All TISA Gridding software terminates using the CERES-defined EXIT CODES for the Langley Terra Information System (LaTIS). Successful completion is indicated by an exit code of 0.

4.7.1.4 Test Summary

The UNIX time utility yielded the following results for ONE of the CER9.3P1 jobs, when the test was run on thunder:

29.1u 9.8s 0:40 0+0k 1020688k 128+34io 23pf+0w

4.7.2 Evaluation Procedures

4.7.2.1 Output Evaluation

Execute the following commands to compare PGE CER9.3P1 generated output with expected output. The eval_runttest.csh script will check the following outputs: (3) QA files, (4) Logfiles, (5) .met files, and (1) SFC Hour Output files.

```
cd $CERESHOME/tisa_grid/test_suites/CER9.3P1
eval_runttest.csh 3
eval_runttest.csh 4
eval_runttest.csh 5
eval_runttest.csh 1
```

NOTE: If the differences in the LogReport file show an iostat=4211 error followed by a message that the error is being ignored, then this difference is okay. For some reason, the lib-4211 error is sometimes erroneously tripped. These occurrences are not necessarily consisted on all machines. Therefore, they may appear in the differences, especially if expected output is not created on the same machine as the test output.

4.7.3 Solutions to Possible Problems

In the event of problems, contact one of the TISA Gridding analysts.

4.8 CER9.4P1: SFC HDF Processor

4.8.1 Stand Alone Test Procedures

Before testing PGE CER9.4P1, source the appropriate environment scripts and copy the test data to the appropriate directory.

```
source $CERESENV (SGI 64-bit version)
source $CERESHOME/tisa_grid/test_suites/env-variable-test-set.csh
source $CERESHOME/tisa_grid/TISAgrib-env.csh
set BINDIR = $CERESHOME/tisa_grid/bin
set EXPDIR = $CERESHOME/tisa_grid/data/out_exp/CER9.4P1
cd $CERESHOME/tisa_grid/test_suites/CER9.4P1
```

NOTE: PGE CER9.4P1 uses the output produced from testing PGE CER9.3P1.

4.8.1.1 PCF Generator

The SFC HDF processor references a Process Control File (PCF) for file names, paths, and runtime parameters. The test PCF is created by executing an ASCII file generator and then using its output as input to the PCF generator.

1. Pre-job cleanup

\$BINDIR/clean 9.4 200209

2. Generate the ASCII input file.

\$BINDIR/input_gen_9.4P1.csh 200209

The following ASCII input file will be created in **\$CERESHOME/tisa_grid/rcf/pif**:

CER9.4P1_PCFin_Aqua-FM4-MODIS_TestSuite_111111.200209

3. Generate the PCFs.

```
set PIFDIR = $CERESHOME/tisa_grid/rcf/pif
set PCFin = $PIFDIR/CER9.4P1_PCFin_Aqua-FM4-MODIS_TestSuite_111111.200209
$BINDIR/pcf_gen_9.4P1.csh $PCFin
```

The following ASCII input file will be created in **\$CERESHOME/tisa_grid/rcf/pcf**:

CER9.4P1_PCF_Aqua-FM4-MODIS_TestSuite_111111.200209

```
cd $CERESHOME/tisa_grid/test_suites/CER9.4P1
cp $EXPDIR/variables-Exp $CERESHOME/tisa_grid/test_suites/CER9.4P1/variables-
Exp
$CERESLIB/bin/setVariables.csh Test
```

4. Compare the generated PCFs to the one supplied with the delivery:

eval_runttest.csh 2

4.8.1.2 Execution

The SFC HDF processor is run by executing the tisa_grid_sfc_hdf_processor.csh script.

```
set PCFDIR = $CERESHOME/tisa_grid/rcf/pcf
set PCF = $PCFDIR/CER9.4P1_PCF_Aqua-FM4-MODIS_TestSuite_111111.200209
$BINDIR/tisa_grid_sfc_hdf_processor.csh $PCF
```

After job completion of the SFC HDF processor, PGE CER9.4P1, the following files will have been created:

In the **\$CERESHOME/tisa_grid/data/out_comp/data/SFC_hdf** directory:

```
CER_SFC_Aqua-FM4-MODIS_TestSuite_111111.200209Znn
CER_SFC_Aqua-FM4-MODIS_TestSuite_111111.200209Znn.met
```

where nnn = 01 .. 36.

In the **\$CERESHOME/tisa_grid/data/runlogs** directory:

```
CER9.4P1_LogReport_Aqua-FM4-MODIS_TestSuite_111111.200209
CER9.4P1_LogStatus_Aqua-FM4-MODIS_TestSuite_111111.200209
CER9.4P1_LogUser_Aqua-FM4-MODIS_TestSuite_111111.200209
```

\$CERESLIB/bin/setVariables.csh Test

The following file will have been created:

\$CERESHOME/tisa_grid/test_suites/CER9.4P1/variables-Test

NOTE: It is important that the PGE execution and the creation of the above file be done on the same day. If the day differs then the logfiles, .met files, and test evaluations will not be successful.

4.8.1.3 Exit Codes

All TISA Gridding software terminates using the CERES-defined EXIT CODES for the Langley Terra Information System (LaTIS). Successful completion is indicated by an exit code of 0.

4.8.1.4 Test Summary

The UNIX time utility yielded the following results for ONE of the CER9.4P1 jobs, when the test was run on thunder:

65.8u 8.1s 1:17 0+0k 33632k 984+288io 32pf+0w

4.8.2 Evaluation Procedures

4.8.2.1 Output Evaluation

Execute the following commands to compare PGE CER9.4P1 generated output with expected output. The eval_runttest.csh script will check the following outputs: (3) Logfiles, (4) .met files, and (1) SFC Hour Output files.

```
cd $CERESHOME/tisa_grid/test_suites/CER9.4P1
cp $EXPDIR/variables-Exp $CERESHOME/tisa_grid/test_suites/CER9.4P1/variables-
    Exp
$CERESLIB/bin/setVariables.csh Test

eval_runttest.csh 3
eval_runttest.csh 4
eval_runttest.csh 1
```

4.8.3 Solutions to Possible Problems

In the event of problems, contact one of the TISA Gridding analysts.

References

1. Clouds and the Earth's Radiant Energy System (CERES) Data Management System, *Data Products Catalog*, Release 2, March 1998

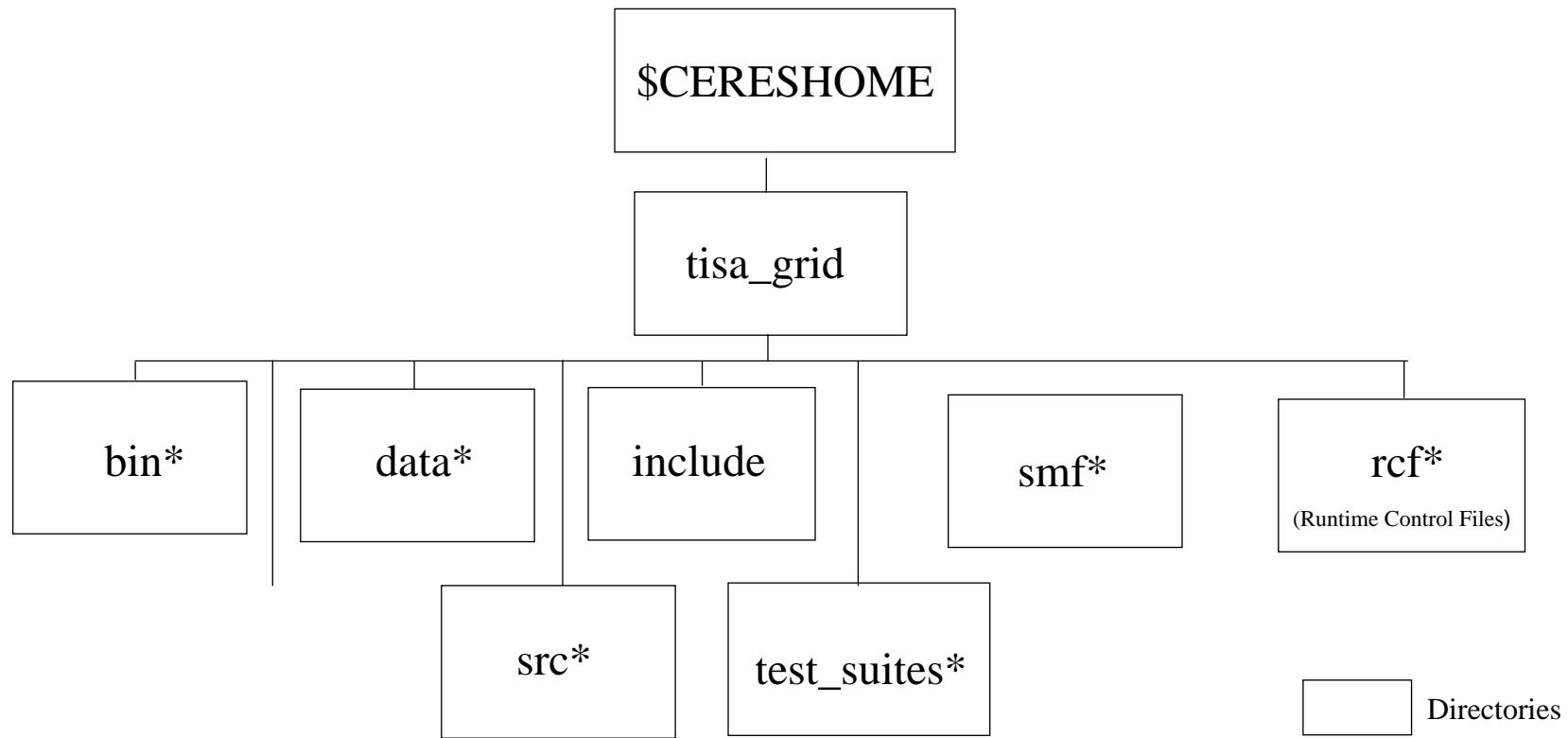
Appendix A Acronyms and Abbreviations

ASDC	Atmospheric Sciences Data Center
CERES	Clouds and the Earth's Radiant Energy System
CRS	Cloud Radiated Swath
DAAC	Distributed Active Archive Center
EOS	Earth Observing System
EOS-AM	EOS Morning Crossing Mission
EOS-PM	EOS Afternoon Crossing Mission
ERBE	Earth Radiation Budget Experiment
ERBS	Earth Radiation Budget Satellite
FSW	Gridded Single Satellite Fluxes and Clouds and Compute Spatial Averages
GMT	Greenwich meridian time
HDF	Hierarchical Data Format
MCF	Metadata Control Files
MOA	Meteorological, Ozone, and Aerosol
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
PCF	Process Control File
PGE	Product Generation Executives
PMOA	Post Meteorological, Ozone, and Aerosol
SFC	Gridded Single Satellite TOA and Surface Fluxes
SMF	Status Message File
SSF	Single Satellite CERES Footprint TOA and Surface Fluxes, Clouds
TISA	Time Interpolation and Spatial Averaging
TOA	Top-of-the-Atmosphere
TRMM	Tropical Rainfall Measuring Mission

Appendix B Directory Structure Diagrams

Directory Structure for Subsystems 6 and 9

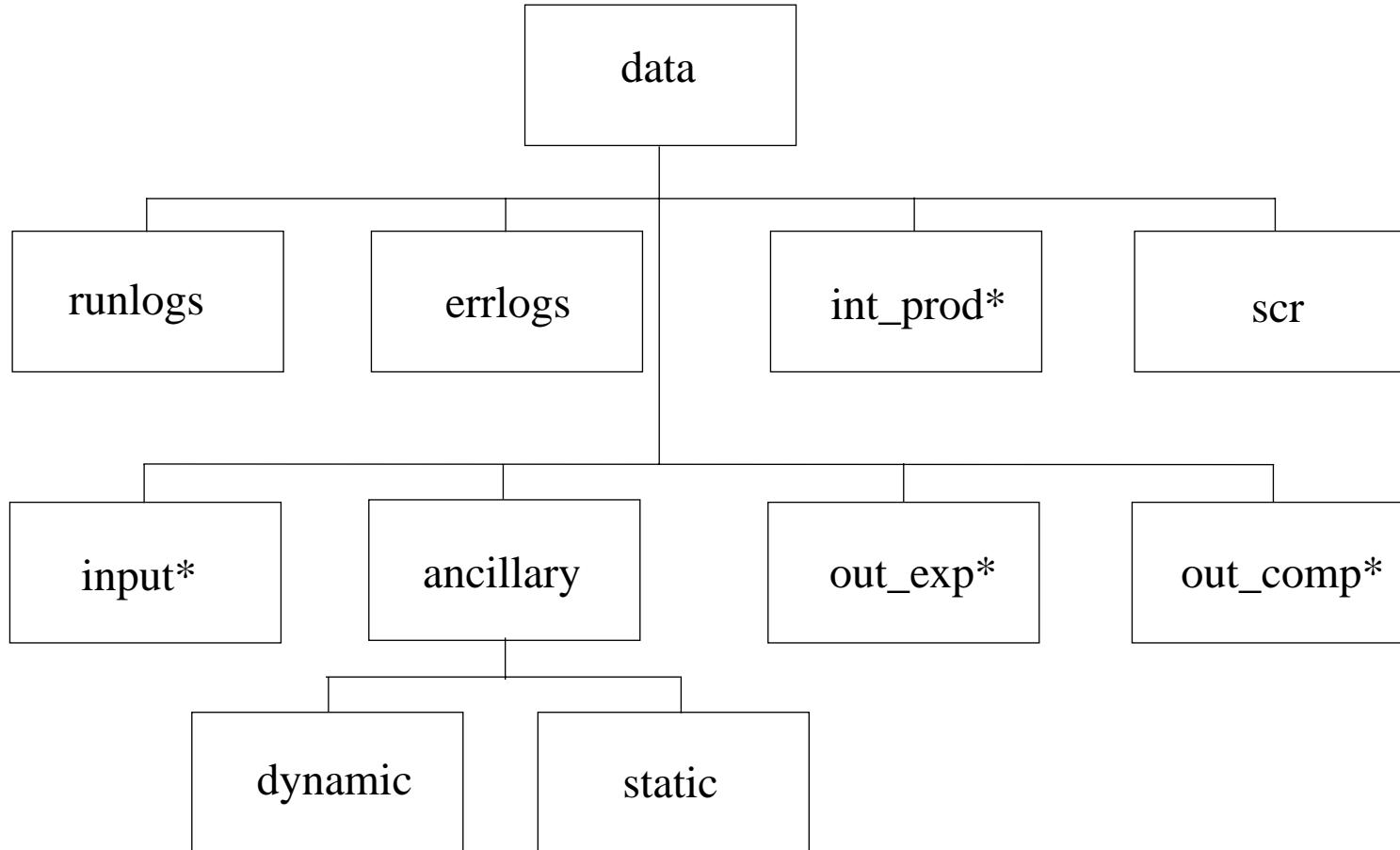
B-1



* Breakdown of subdirectories shown on following pages.

Figure B-1. Directory Structure for Subsystems 6 and 9 within the TISA_grid Working Group (1 of 9)

Breakdown of the *tisa_grid/data* Directory



* Breakdown of subdirectories shown on following pages.

Figure B-1. Directory Structure for Subsystems 6 and 9 within the TISA_grid Working Group (2 of 9)

Breakdown of the *tisa_grid/data/input* Directory

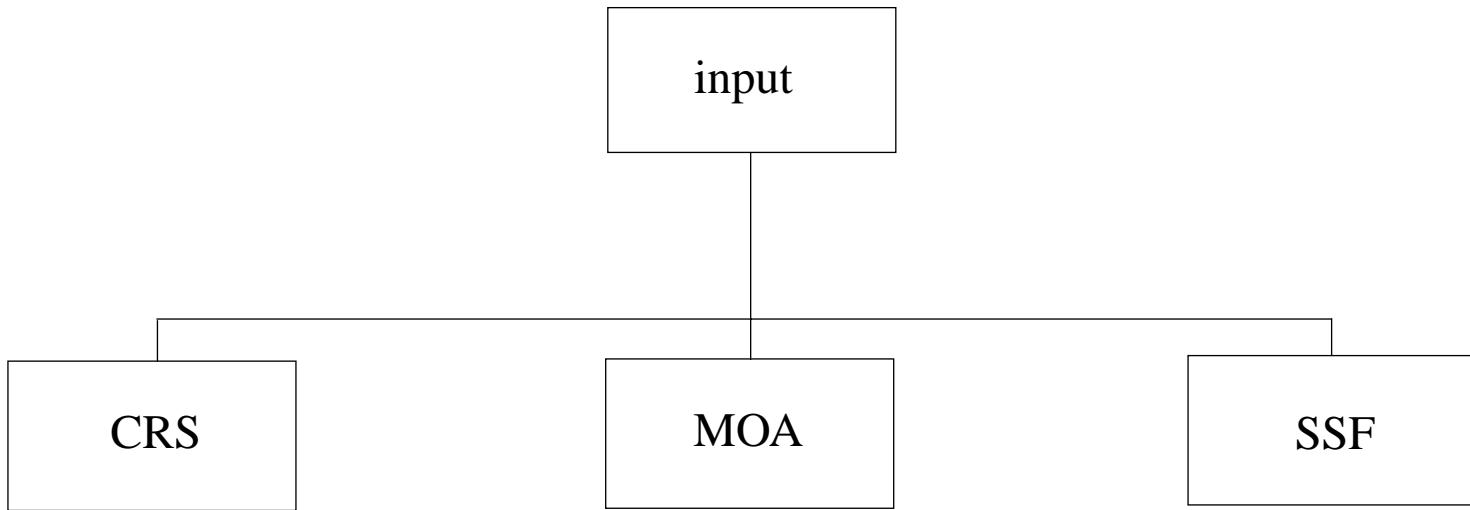
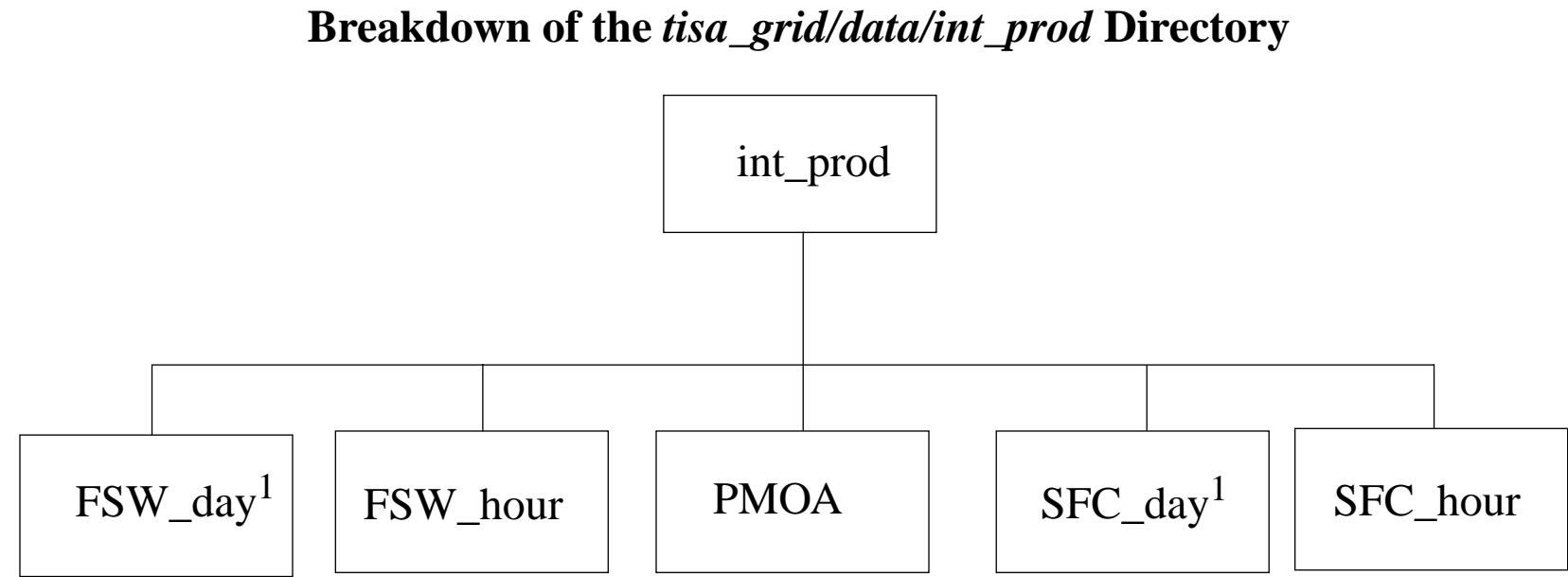


Figure B-1. Directory Structure for Subsystems 6 and 9 within the TISA_grid Working Group (3 of 9)



¹ All files will be deleted from these directories upon successful completion.

Figure B-1. Directory Structure for Subsystems 6 and 9 within the TISA_grid Working Group (4 of 9)

Breakdown of the *tisa_grid/data/out_comp* Directory

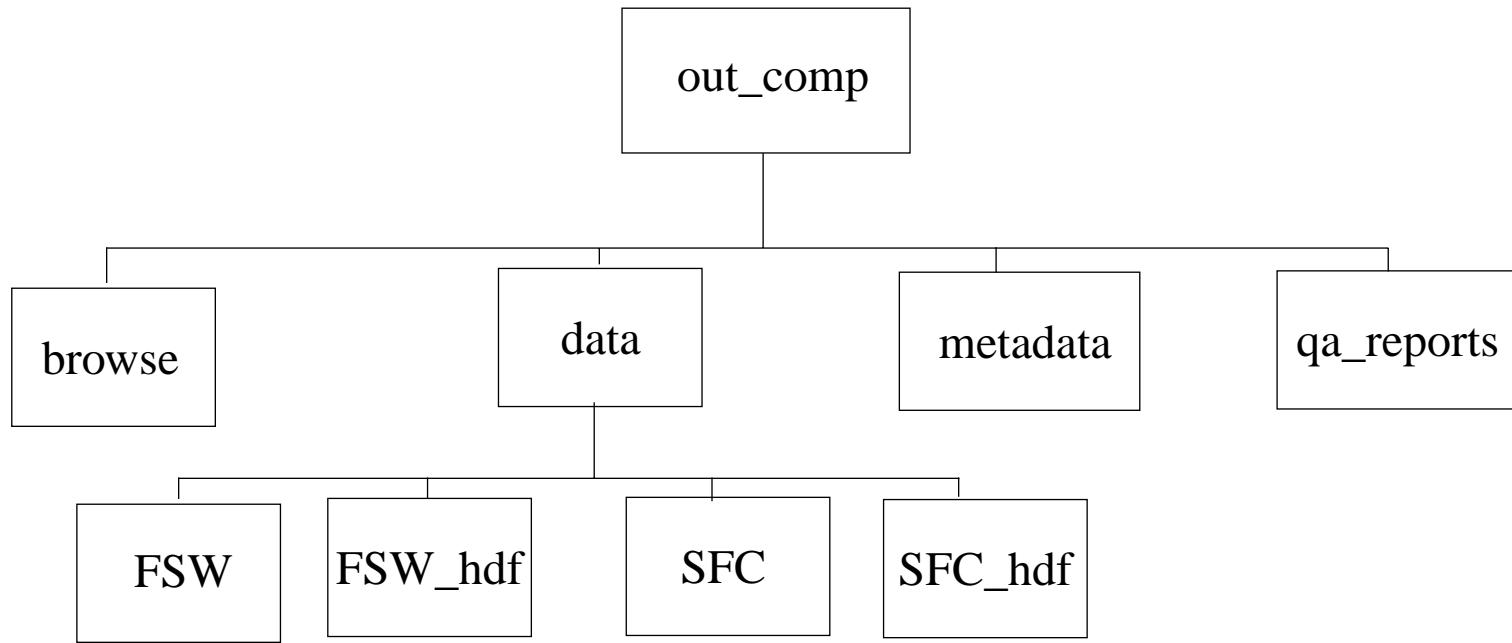


Figure B-1. Directory Structure for Subsystems 6 and 9 within the TISA_grid Working Group (5 of 9)

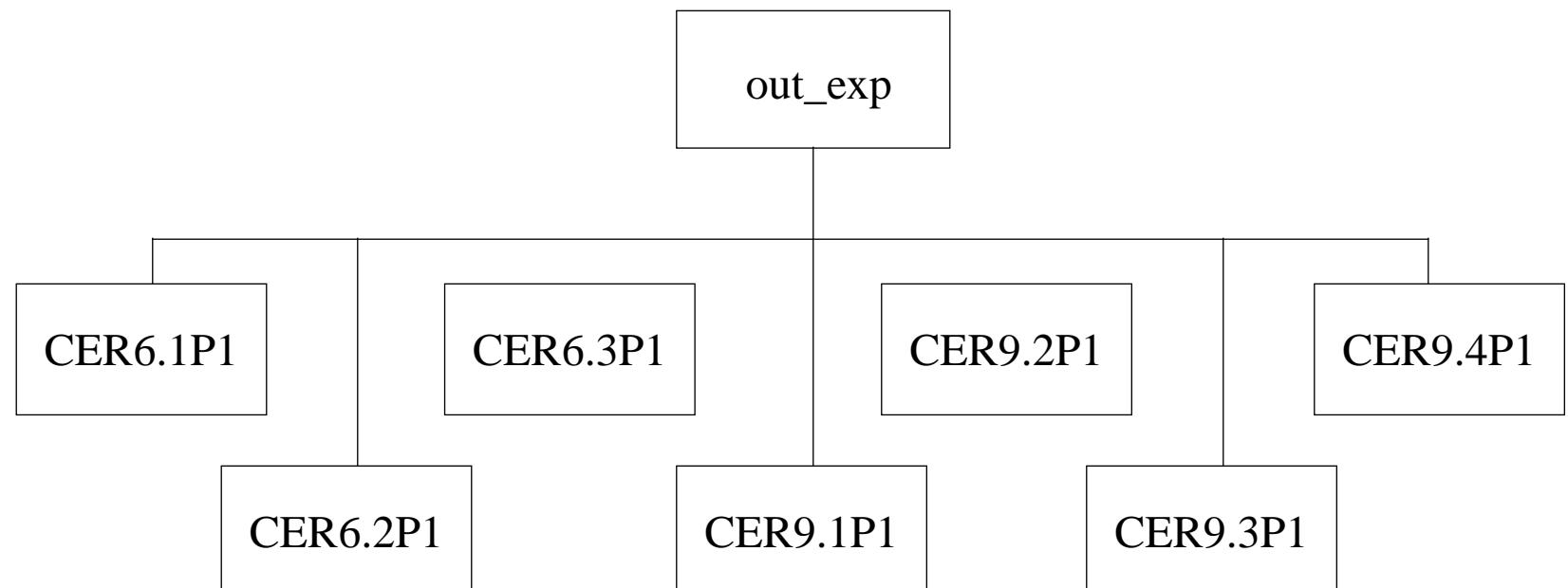


Figure B-1. Directory Structure for Subsystems 6 and 9 within the TISA_grid Working Group (6 of 9)

Breakdown of the *tisa_grid/rcf* Directory

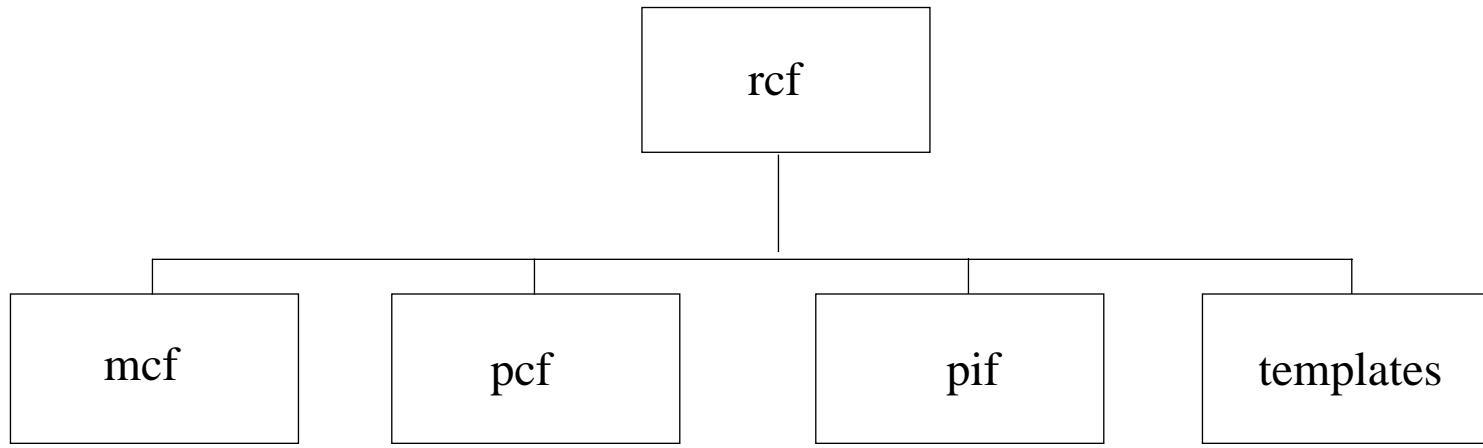


Figure B-1. Directory Structure for Subsystems 6 and 9 within the TISA_grid Working Group (7 of 9)

Breakdown of the *tisa_grid/src* Directory

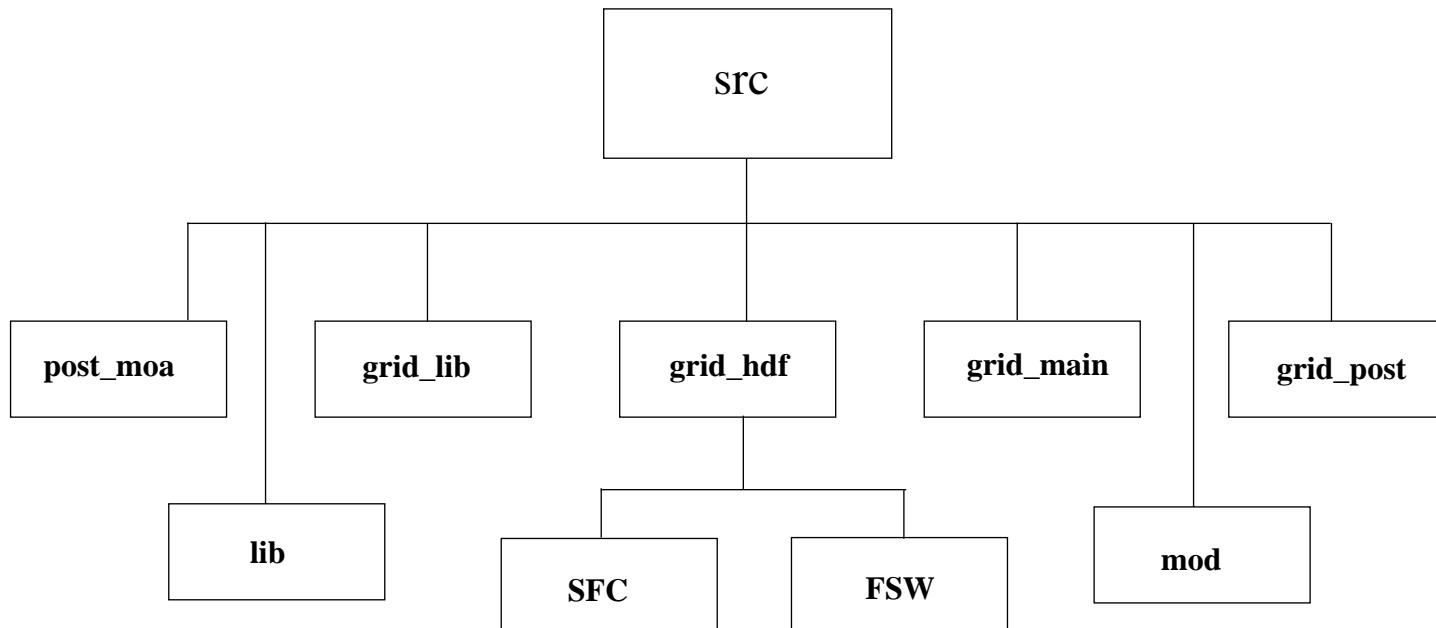


Figure B-1. Directory Structure for Subsystems 6 and 9 within the TISA_grid Working Group (8 of 9)

Breakdown of the *tisa_grid/test_suites* Directory

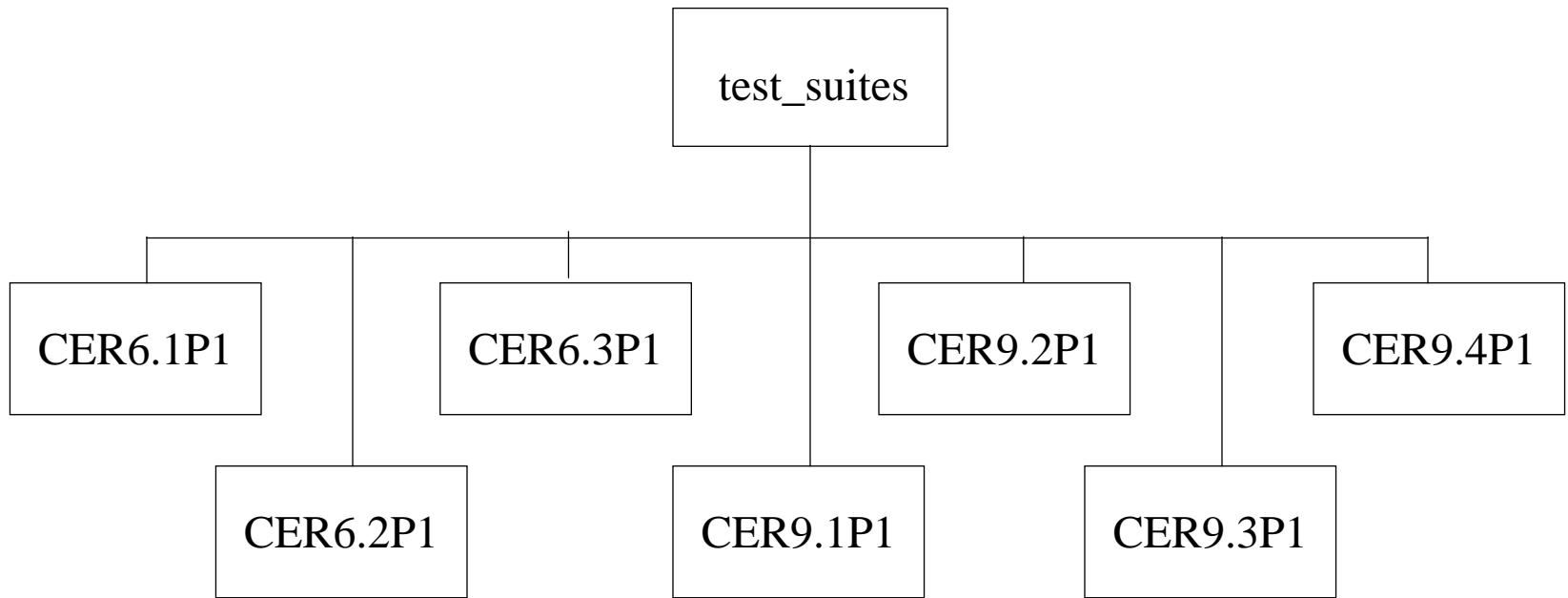


Figure B-1. Directory Structure for Subsystems 6 and 9 within the TISA_grid Working Group (9 of 9)

Appendix C

File Description Tables

C.1 Production Scripts

The following scripts must be moved to the production environment.

Table C.1-1. Production Scripts (1 of 2)

File Name	Format	Description
tisa_grid_main_processor.csh	ASCII	C-Shell script which executes the Main Processor for PGEs 6.1 and 9.2
tisa_grid_post_processor.csh	ASCII	C-Shell script which executes the Post Processor for PGEs 6.2 and 9.3
tisa_post_moa_processor.csh	ASCII	C-Shell script which executes the Post MOA Processor (PGE 9.1)
tisa_grid_sfc_hdf_processor.csh	ASCII	C-Shell script which executes the SFC HDF Processor (PGE 9.4)
tisa_grid_fsw_hdf_processor.csh	ASCII	C-Shell script which executes the FSW HDF Processor (PGE 6.3)
input_gen_6.1P1.csh	ASCII	C-Shell script which creates the PCF generator's ASCII file needed by PGE 6.1
input_gen_6.2P1.csh	ASCII	C-Shell script which creates the PCF generator's ASCII file needed by PGE 6.2
input_gen_6.3P1.csh	ASCII	C-Shell script which creates the PCF generator's ASCII file needed by PGE 6.3
input_gen_9.1P1.csh	ASCII	C-Shell script which creates the PCF generator's ASCII file needed by PGE 9.1
input_gen_9.2P1.csh	ASCII	C-Shell script which creates the PCF generator's ASCII file needed by PGE 9.2
input_gen_9.3P1.csh	ASCII	C-Shell script which creates the PCF generator's ASCII file needed by PGE 9.3
input_gen_9.4P1.csh	ASCII	C-Shell script which creates the PCF generator's ASCII file needed by PGE 9.4
pcf_gen_6.1P1.csh	ASCII	C-Shell script which creates the PCF for PGE 6.1
pcf_gen_6.2P1.csh	ASCII	C-Shell script which creates the PCF for PGE 6.2
pcf_gen_6.3P1.csh	ASCII	C-Shell script which creates the PCF for PGE 6.3
pcf_gen_9.1P1.csh	ASCII	C-Shell script which creates the PCF for PGE 9.1
pcf_gen_9.2P1.csh	ASCII	C-Shell script which creates the PCF for PGE 9.2

Table C.1-1. Production Scripts (2 of 2)

File Name	Format	Description
pcf_gen_9.3P1.csh	ASCII	C-Shell script which creates the PCF for PGE 9.3
pcf_gen_9.4P1.csh	ASCII	C-Shell script which creates the PCF for PGE 9.4
run_pge	ASCII	C-Shell script which runs all the PGEs for the Test Case
gen_pcf_template.csh	ASCII	C-Shell script which generates the PCF template for all PGEs
gen_pcf_template.perl	ASCII	Perl script which generates the PCF template for a PGE
diff_log	ASCII	C-Shell script which performs comparison of log files
diff_met	ASCII	C-Shell script which performs comparison of meta-data files
diff_pcf	ASCII	C-Shell script which performs comparison of PCF files
diff_qc	ASCII	C-Shell script which performs comparison of QC files
clean	ASCII	C-Shell script which removes output files from TISA Gridding PGEs
TISAgrib_env.csh	ASCII	C-Shell script which sets environment variables for use in the ASCII file generators for CER9.1P1
env-variable-test-set.csh	ASCII	C-Shell script which sets environment variables for use in the ASCII file generators for CER9.1P1
TISAgrib_env6.csh	ASCII	C-Shell script which sets environment variables for use in the ASCII file generators for CER6.1-3P1
TISAgrib_test_env6.csh	ASCII	C-Shell script which sets environment variables for use in the ASCII file generators for CER6.1-3P1
TISAgrib_env.csh	ASCII	C-Shell script which sets environment variables for use in the ASCII file generators for CER9.2-4P1
env-variable-test-set.csh	ASCII	C-Shell script which sets environment variables for use in the ASCII file generators for CER9.2-4P1

C.2 Executables

Table C.2-1. Executables

File Name	Format	Description
tisa_grid_main_processor.exe ¹	Binary	Main Processor executable (PGEs 6.1 and 9.2)
tisa_grid_post_processor.exe ¹	Binary	Post Processor executable (PGEs 6.2 and 9.3)
tisa_post_moa_processor.exe ¹	Binary	Post MOA Processor executable (PGE 9.1)
tisa_grid_sfc_hdf_processor.exe ¹	Binary	SFC HDF Processor executable (PGE 9.4)
tisa_grid_fsw_hdf_processor.exe ¹	Binary	FSW HDF Processor executable (PGE 6.3)

1. These files will be generated on execution of Subsystem software and are not included in the tar file.

C.3 Status Message Files

Table C.3-1. Status Message Files (1 of 2)

File Name	Format	Description
ADMIN_MOD_25850.t	ASCII	Status Message Text File
CLOUD_MOD_25851.t	ASCII	Status Message Text File
CLRSKY_ADJ_MOD_25852.t	ASCII	Status Message Text File
CONTROLLER_25800.t	ASCII	Status Message Text File
CRS_FILE_25820.t	ASCII	Status Message Text File
FLUX_MOD_25853.t	ASCII	Status Message Text File
FOOTPRINT_25801.t	ASCII	Status Message Text File
FSW_HDF_26221.t	ASCII	Status Message Text File
FSW_HOUR_25822.t	ASCII	Status Message Text File
FSW_RANGE_25823.t	ASCII	Status Message Text File
GLOBE_25802.t	ASCII	Status Message Text File
GRIDPCF_25803.t	ASCII	Status Message Text File
HOURBOX_25804.t	ASCII	Status Message Text File
PMOA_FILE_25826.t	ASCII	Status Message Text File
POSTPROC_25891.t	ASCII	Status Message Text File
POST_MOA_26211.t	ASCII	Status Message Text File
REGION_MOD_25854.t	ASCII	Status Message Text File
SCENE_MOD_25855.t	ASCII	Status Message Text File
SFC_HDF_26222.t	ASCII	Status Message Text File
SFC_HOUR_25824.t	ASCII	Status Message Text File
SFC_RANGE_25825.t	ASCII	Status Message Text File
SOL_STATS_25830.t	ASCII	Status Message Text File
SRF_RAD_MOD_25856.t	ASCII	Status Message Text File
SSF_FILE_25821.t	ASCII	Status Message Text File
STATS_MOD_25857.t	ASCII	Status Message Text File
SWATH_25805.t	ASCII	Status Message Text File
SW_DIRMOD_RTNS_25831.t	ASCII	Status Message Text File
SYS_PARAMS_25832.t	ASCII	Status Message Text File

Table C.3-1. Status Message Files (2 of 2)

File Name	Format	Description
TISAGRID_25888.t	ASCII	Status Message Text File
TISAVG_26300.t	ASCII	Status Message Text File

C.4 Processing Control Files (PCF) and Metadata Control Files (MCF)

The Process Control Files are not included in the Software Delivery Package. They will be created by the PCF generator scripts.

Table C.4-1. Metadata Control Files

File Name	Format	Description
FSW-HR.MCF	ODL	MCF for the hourly FSW file(s) produced by PGE 6.1
IRGRP.MCF	ODL	MCF for the hourly FSW range report produced by PGE 6.1
IQCRP.MCF	ODL	MCF for the QC report produced by PGE 6.2
FSWB.MCF	ODL	MCF for the monthly FSW file(s) produced by PGE 6.2
FSW.MCF	ODL	MCF for the monthly HDF FSW file(s) produced by PGE 6.3
PMOA.MCF	ODL	MCF for the Post MOA file(s) produced by PGE 9.1
SFC-HR.MCF	ODL	MCF for the hourly SFC file(s) produced by PGE 9.2
MRGRP.MCF	ODL	MCF for the hourly SFC range report produced by PGE 9.2
MQCRP.MCF	ODL	MCF for the QC report produced by PGE 9.3
SFCB.MCF	ODL	MCF for the monthly SFC file(s) produced by PGE 9.3
SFC.MCF	ODL	MCF for the monthly HDF SFC file(s) produced by PGE 9.4
MOVLP.MCF	ODL	MCF SFC monthly overlap file produced by PGE 9.2

Table C.4-2. Process Control Files¹

File Name	Format	Description
CER6.1P1_PCF_TRMM-PFM-VIRS_ValidationR2_000000.1998010100	ASCII	Process Control File for PGE 6.1
CER6.1P1_PCF_TRMM-PFM-VIRS_ValidationR2_000000.1998010208	ASCII	Process Control File for PGE 6.1
CER6.1P1_PCF_TRMM-PFM-VIRS_ValidationR2_000000.1998011109	ASCII	Process Control File for PGE 6.1
CER6.1P1_PCF_TRMM-PFM-VIRS_ValidationR2_000000.1998012109	ASCII	Process Control File for PGE 6.1
CER6.1P1_PCF_TRMM-PFM-VIRS_ValidationR2_000000.1998013123	ASCII	Process Control File for PGE 6.1
CER6.2P1_PCF_TRMM-PFM-VIRS_ValidationR2_000000.199801	ASCII	Process Control File for PGE 6.2
CER6.3P1_PCF_TRMM-PFM-VIRS_ValidationR2_000000.199801	ASCII	Process Control File for PGE 6.3
CER9.1P1_PCF_CERES_ECMWF-GEOS2_009010.199802	ASCII	Process Control File for PGE 9.1
CER9.2P1_PCF_TRMM-PFM-VIRS_ValidationR3_000000.1998020100	ASCII	Process Control File for PGE 9.2
CER9.2P1_PCF_TRMM-PFM-VIRS_ValidationR3_000000.1998020800	ASCII	Process Control File for PGE 9.2
CER9.3P1_PCF_TRMM-PFM-VIRS_ValidationR3_000000.199802	ASCII	Process Control File for PGE 9.3
CER9.4P1_PCF_TRMM-PFM-VIRS_ValidationR3_000000.199802	ASCII	Process Control File for PGE 9.4

1. These files will be generated on execution of Subsystem software and are not included in the tar file.

C.5 Ancillary Input Data

Table C.5-1. Ancillary Input Data

File Name	Format	Description
CERES_DIR_MODEL_19971212	ASCII	CERES Directional Models
fsw_cloud_adj_range	ASCII	Range check parameters for FSW cloud adjustments
fsw_cloud_cond_range	ASCII	Range check parameters for FSW cloud conditions
fsw_cloud_prop_range	ASCII	Range check parameters for FSW cloud properties
fsw_clrsky_adj_range	ASCII	Range check parameters for FSW clear sky adjustments
fsw_emissivity_range	ASCII	Range check parameters for FSW emissivity data
fsw_flux_profile_range	ASCII	Range check parameters for FSW profile fluxes
fsw_flux_srf_adj_range	ASCII	Range check parameters for FSW surface adjustment fluxes
fsw_flux_toa_range	ASCII	Range check parameters for FSW TOA fluxes
fsw_flux_type2_range	ASCII	Range check parameters for FSW profile and adjustment fluxes
fsw_region_range	ASCII	Range check parameters for FSW region data
fsw_scene_range	ASCII	Range check parameters for FSW angular model scene type data
fsw_srf_data_range	ASCII	Range check parameters for FSW surface data
fsw_srf_only_range	ASCII	Range check parameters for FSW surface only data
sfc_cloud_prop_range	ASCII	Range check parameters for SFC cloud properties
sfc_emissivity_range	ASCII	Range check parameters for SFC emissivity data
sfc_flux_srf_range	ASCII	Range check parameters for SFC surface adjustment fluxes
sfc_flux_toa_range	ASCII	Range check parameters for SFC TOA fluxes
sfc_region_range	ASCII	Range check parameters for SFC region data
sfc_scene_range	ASCII	Range check parameters for SFC angular model scene type data

C.6 Output Temporary Data Files (Production Results)

Table C.6-1. Output Temporary Data Files

File Name	Format	Description
CER_FSWD_TRMM-PFM-VIRS_ValidationR2_000000.199801\$day ¹ (where \$day is 01-31)	Binary	Temporary Data Files Created by PGE 6.2
CER_FSWD_TRMM-PFM-VIRS_ValidationR2_000000.199801\$day ¹ (where \$day is 01-31)	Binary	Temporary Data Files Created by PGE 9.3
CER6.1P1_PCFin_TRMM-PFM-VIRS_ValidationR2_000000.1998010100	ASCII	ASCII File for PGE 6.1 - Generated by the Input File Generator
CER6.1P1_PCFin_TRMM-PFM-VIRS_ValidationR2_000000.1998010208	ASCII	ASCII File for PGE 6.1 - Generated by the Input File Generator
CER6.1P1_PCFin_TRMM-PFM-VIRS_ValidationR2_000000.1998011109	ASCII	ASCII File for PGE 6.1 - Generated by the Input File Generator
CER6.1P1_PCFin_TRMM-PFM-VIRS_ValidationR2_000000.1998012109	ASCII	ASCII File for PGE 6.1 - Generated by the Input File Generator
CER6.1P1_PCFin_TRMM-PFM-VIRS_ValidationR2_000000.1998013123	ASCII	ASCII File for PGE 6.1 - Generated by the Input File Generator
CER6.2P1_PCFin_TRMM-PFM-VIRS_ValidationR2_000000.199801	ASCII	ASCII File for PGE 6.2 - Generated by the Input File Generator
CER6.3P1_PCFin_TRMM-PFM-VIRS_ValidationR2_000000.199801	ASCII	ASCII File for PGE 6.3 - Generated by the Input File Generator
CER9.1P1_PCFin_CERES_ECMWF-GEOS2_009010.199802	ASCII	ASCII File for PGE 9.1 - Generated by the Input File Generator
CER9.2P1_PCFin_TRMM-PFM-VIRS_ValidationR3_000000.1998020100	ASCII	ASCII File for PGE 9.2 - Generated by the Input File Generator
CER9.2P1_PCFin_TRMM-PFM-VIRS_ValidationR3_000000.1998020800	ASCII	ASCII File for PGE 9.2 - Generated by the Input File Generator
CER9.3P1_PCFin_TRMM-PFM-VIRS_ValidationR3_000000.199802	ASCII	ASCII File for PGE 9.3 - Generated by the Input File Generator
CER9.4P1_PCFin_TRMM-PFM-VIRS_ValidationR3_000000.199802	ASCII	ASCII File for PGE 9.4 - Generated by the Input File Generator

1. These files will be generated on execution of Subsystem software and are not included in the tar file.